

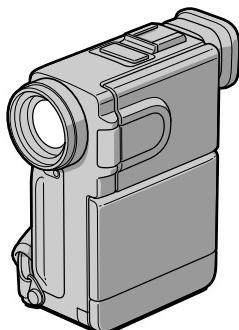
SONY®

3-858-632-12 (1)

Digital Video Camera Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly, and retain it for future reference.



DCR-PC7E

Mini DV Digital
Video Cassette
Handycam Vision™

—
©1996 by Sony Corporation

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

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Before you begin

Using this manual

Welcome !

Congratulations on your purchase of this Sony Handycam Vision™ camcorder. With your Handycam Vision, you can capture life's precious moments with superior picture and sound quality. Your Handycam Vision is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

As you read through this manual, buttons and settings on the camcorder are shown in capital letters.

e.g., Set the POWER switch to CAMERA.

As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need an PAL system-based TV.

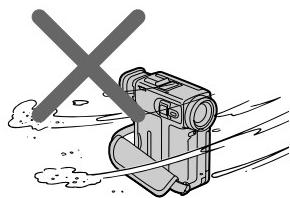
Precaution on copyright

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

- Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].
- Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].
- Never leave the camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight [c].

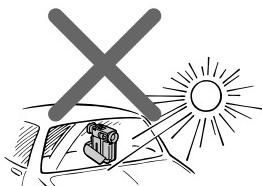
[a]



[b]

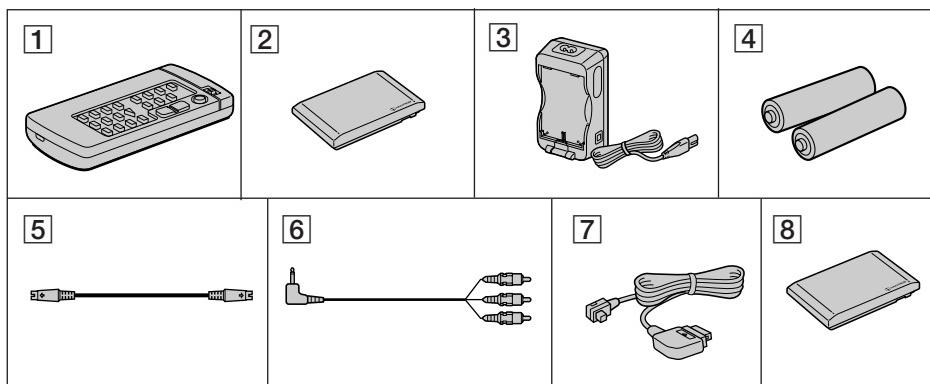


[c]



Checking supplied accessories

Check that the following accessories are supplied with your camcorder.



[1] Wireless Remote Commander (1)
(p. 66)

[2] NP-F100 battery pack (1) (p. 6)

[3] AC-V100 AC power adaptor (1)
(p. 6, 20)

The shape of the plug varies from region to region.

[4] R6 (size AA) battery for Remote Commander (2) (p. 67)

[5] S video connecting cable (1) (p. 38, 42)

[6] A/V connecting cable (1) (p. 38, 42)

[7] DK-626 connecting cord (1) (p. 20)

[8] Battery terminal cover (1) (p. 8)

Note on the colour viewfinder and the LCD screen

The colour viewfinder and the LCD screen are made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear constantly on the colour viewfinder or the LCD screen. These points are not recorded on the tape. This is not a malfunction. (Effective dots: more than 99.99%)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Getting started

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.

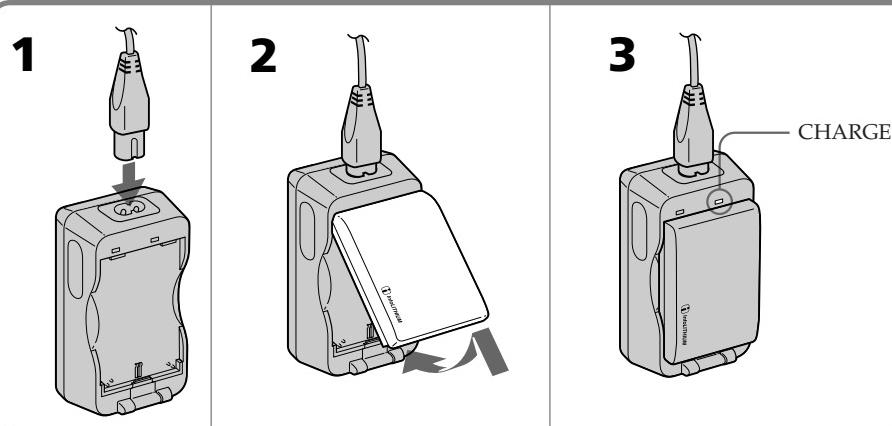
This camcorder operates with the NP-F100/NP-F200 "InfoLITHIUM" battery pack.

"InfoLITHIUM" is a trademark of Sony Corporation.

Charging the battery pack

- (1) Connect the mains lead to the AC power adaptor.
- (2) Align the hooks of the battery pack with the AC power adaptor. Then fit the battery pack in the direction of the arrow.
- (3) Connect the AC power cord to mains. The CHARGE lamp (orange) lights up.
Charging begins.

When the CHARGE lamp goes out, normal charge is completed (**Normal charge**). For a full charge, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour (**Full charge**). Unplug the cord from the mains, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.



Charging time

Battery pack	Charging time *
NP-F100 (supplied)	130 (70)
NP-F200	170 (110)

Numbers in parentheses indicate the time for a normal charge. (**Normal charge**)

* Approximate number of minutes to charge an empty battery pack fully using the supplied AC power adaptor. (**Full charge**) (Lower temperatures require a longer charging time.)

Battery life

While using with viewfinder

Battery pack*	Continuous recording time **	Typical recording time ***
NP-F100 (supplied)	55 (45)	30 (25)
NP-F200	100 (85)	50 (45)

While using with LCD

Battery pack	Continuous recording time **	Typical recording time ***	Playing time with LCD
NP-F100 (supplied)	45 (40)	25 (20)	50 (45)
NP-F200	75 (70)	40 (35)	90 (80)

Numbers in parentheses indicate the time when you use a normal charged battery pack.
When using both the viewfinder and the LCD screen, the battery life is shorter.

When recording in a cold environment, the battery life is shorter.

** Approximate number of minutes to record at normal temperature

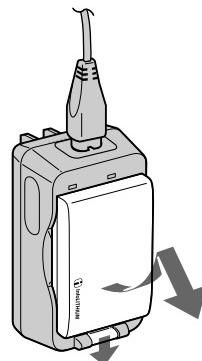
*** Approximate number of minutes when recording with repeated recording start/stop, standby, zooming and turning the power on/off. The actual battery life may be shorter.

Note on remaining battery time indication during recording

Remaining battery time is displayed on the LCD screen or in the viewfinder. It may not be displayed properly, however, depending on the conditions and circumstances of use.

To remove the battery pack

While holding the battery pack firmly, press the button on the AC power adaptor and take out the battery pack in the direction of the arrow.



When removing the battery pack

Be careful not to drop it.

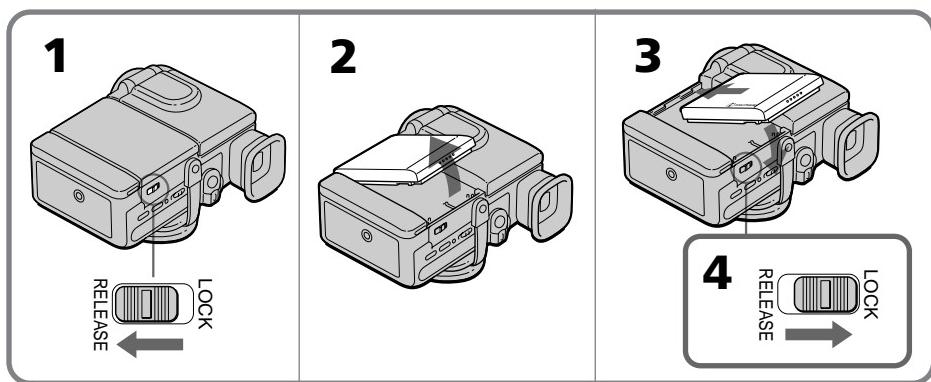
Notes on charging the battery pack

- The CHARGE lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
- You cannot charge the battery pack while operating the camcorder using the AC power adaptor.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Charging and installing the battery pack

Installing the battery pack

- (1) Set the BATT LOCK/RELEASE switch to RELEASE.
- (2) Remove the battery terminal cover.
- (3) Align the hooks of the battery pack with the catches of the camcorder and place the battery pack in place.
- (4) Set the BATT LOCK/RELEASE switch to LOCK.



To remove the battery pack

Follow the procedure above and in step 3, remove the battery pack. When removing the battery pack, be careful not to drop it.

Note on battery terminal cover

To protect the battery terminals, install the battery terminal cover after the battery pack is removed.

Note on BATT LOCK/RELEASE switch

Be sure that the BATT LOCK/RELEASE switch is set to LOCK when the battery pack is installed. Otherwise, it may drop out when you use the camcorder.

To prevent malfunction

In the following cases, make sure that the POWER switch is set to OFF first.

- Installing and removing the battery pack.
- Inserting and ejecting a cassette.

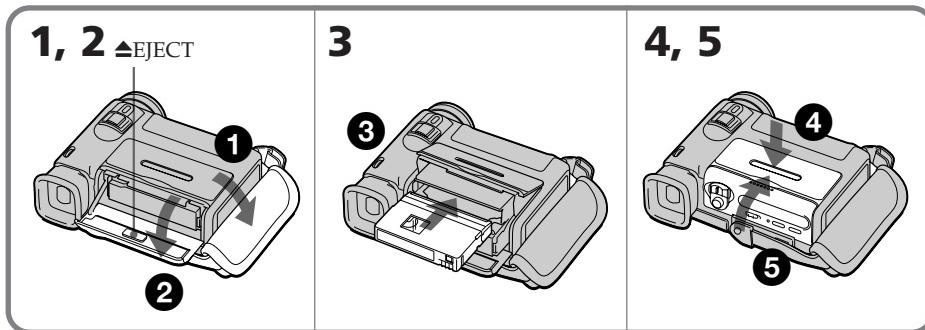
Inserting a cassette

You can use mini DV cassette with ^{Mini}**DV** logo* only.

Make sure that the power source is installed.

- (1) Place the grip strap away from the lid of the cassette compartment to avoid damaging the lid.
- (2) Open the lid of the cassette compartment and push \blacktriangle EJECT inside the lid. The cassette compartment automatically lifts up and opens.
- (3) Insert a cassette with the window facing out.
- (4) Push the cassette compartment. The cassette compartment is automatically pulled down.
- (5) Close the lid until it clicks.

* ^{Mini}**DV** is a trademark.



Note

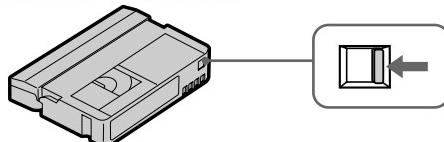
Before you close the lid of the cassette compartment, make sure the cassette compartment is completely pulled down.

To eject the cassette

Follow the procedure above and in step 3, take out the cassette.

To Prevent Accidental Erasure

Slide and open the tab on the cassette to expose the red mark. If you try to record with the red mark exposed, the REC and \blacktriangle indicators flash on the LCD screen or in the viewfinder, and you cannot record on the tape. To re-record on this tape, slide and close the tab to cover the red mark.



Basic operations

Camera recording

Make sure that the power source is installed and a cassette is inserted. When you use the camcorder for the first time, turn it on and reset the date and time to your local date and time before you start recording (p. 48).

Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.

(1) Remove the lens cap and hook it onto the grip strap.

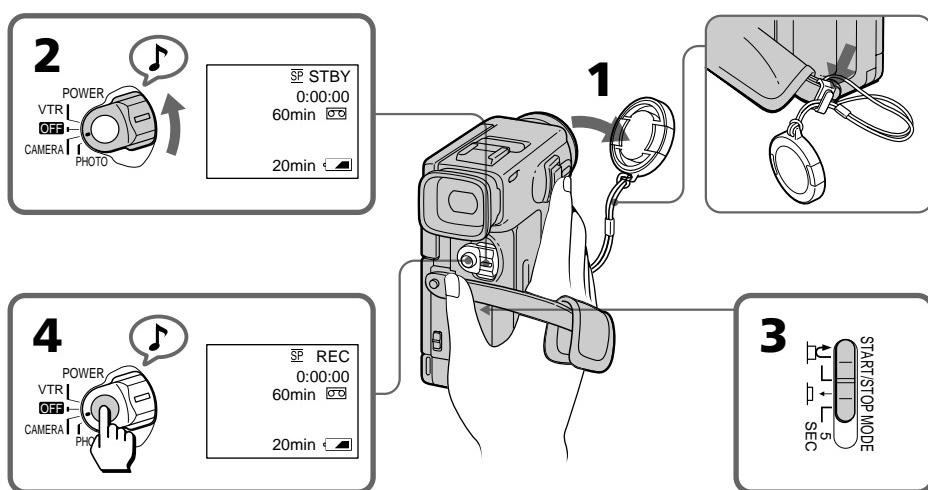
(2) While pressing the small green button on the POWER switch, set it to CAMERA. The camcorder is set to Standby mode.

(3) Slide START/STOP MODE to $\frac{1}{2}$.

(4) Press START/STOP.

The camcorder starts recording. "REC" appears in the viewfinder. The camera recording lamp on the front of the camcorder also lights up.

Do not press START/STOP strongly; if you do, the switching tone will be recorded.



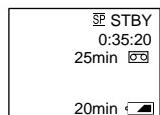
To stop recording momentarily [a]

Press START/STOP. The "STBY" appears in the viewfinder (**Standby mode**).

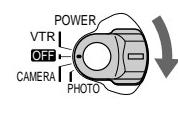
To finish recording [b]

Press START/STOP again to stop recording. Set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

[a]

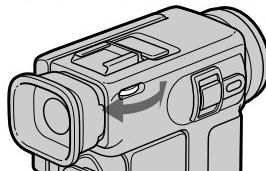


[b]



To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Turn the viewfinder lens adjustment dial so that the indicators in the viewfinder come into sharp focus.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, while pressing the small green button on the POWER switch, set it to OFF once, and then to CAMERA. To start recording, press START/STOP.

Note on recording mode

This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. Select SP or LP in the menu system.

Notes on LP mode

- We recommend to use this camcorder to play back a tape recorded on this camcorder. If a tape recorded on other camcorder is played back on this camcorder, or vice versa, mosaic-pattern noise may appear.
- When you record in SP and LP modes on one tape or you record some scenes in LP mode, the playback picture may be distorted or the time code may not be written properly between scenes.
- We recommend to use a Sony ME cassette.
- You cannot make audio dubbing on a tape recorded in LP mode. Use the SP mode for the tape to be audio dubbed.

Notes on the time code

- The time code indicates the recording or playback time, "0:00:00" (hours : minutes : seconds) in CAMERA mode and "0:00:00:00" (hours : minutes : seconds : frames) in VTR mode.
- Be sure not make a blank portion when recording, because the time code will start from "0:00:00:00" again. You cannot rewrite the time code on the tape if there is a blank portion between pictures.

Note on connecting an external microphone

You can record audio sound by connecting the VMC-LM7 adaptor (not supplied) and an external microphone. Connect the microphone to the MIC jack of the VMC-LM7 adaptor. While recording through an external microphone, the built-in microphone of the camcorder does not work.

Note on the beep sound

As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.

Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Note on remaining tape indicator

The indicator may not be displayed accurately depending on the tape. Though the indicator does not appear at the time of recording, it will appear in a few seconds.

Camera recording

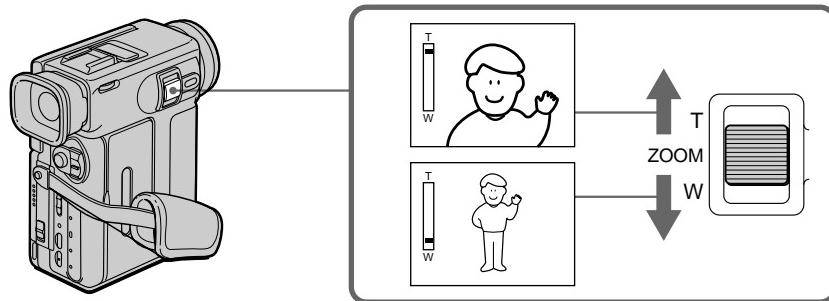
Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.

For more professional-looking recordings, use the zoom function sparingly.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)



Zooming speed (Variable speed zooming)

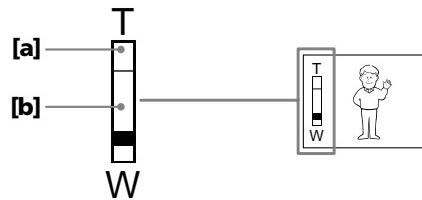
Press the power zoom switch a little for a relatively slow zoom; press it still more for a high-speed zoom. Zooming speed while the camcorder is in the Standby mode is faster than that in the recording mode making it easier to compose the scene.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, press the "W" side of the power zoom switch until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 5/8 feet) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) away in the wide-angle position.

Notes on digital zoom

- More than 10x zoom is performed digitally, if you set the D ZOOM function to ON in the menu system, and the picture quality deteriorates as you go toward the "T" side.
- The horizontal bar in the power zoom indicator separates the digital zooming zone (above the bar [a]) and the optical zooming zone (under the bar [b]). If you set the D ZOOM function to OFF, the part above the bar disappears.
- When using the digital zoom function, zooming power is up to 120x.



Shooting with the LCD screen

You can also record the picture while looking at the LCD screen.

When using the LCD screen, the viewfinder screen turns off automatically. You cannot monitor the sound from the speaker during recording.

(1) Open the LCD panel.

(2) Adjust angle of the LCD panel

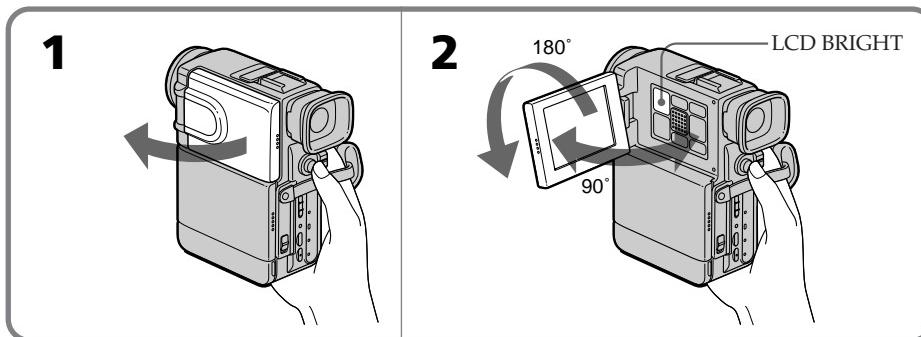
The LCD panel moves about 90 degrees to this side and about 180 degrees to the other side.

To adjust the brightness of the LCD screen, press LCD BRIGHT.

+ side: to brighten the LCD screen

- side: to dim the LCD screen

The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.



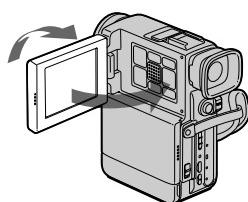
To let the subject monitor the shot

Turn the LCD panel 180 degrees (p. 25).

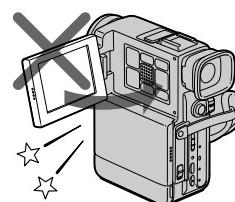
Notes on the LCD panel

- When closing the LCD panel, turn it vertically until it clicks [a].
- When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly [b].
- Close the LCD panel completely when not in use.
- Do not push nor touch the LCD when moving the LCD panel.
- You may find it difficult to view the LCD screen due to glare when using the camcorder outdoors.

[a]



[b]



Camera recording

Selecting the start/stop mode

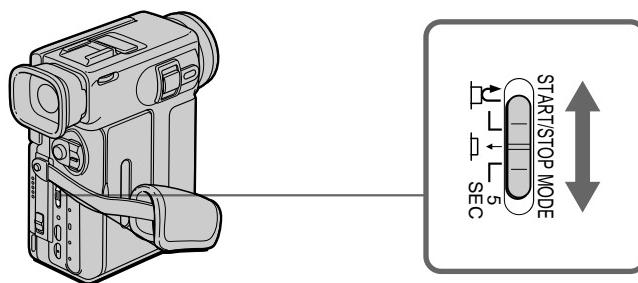
 : When you press START/STOP, the camcorder starts recording. When you press the button again, the camcorder stops recording. (factory setting)

 : As long as you keep pressing START/STOP, the camcorder records. When you release the button, the camcorder stops recording.

5SEC: When you press START/STOP, the camcorder records for 5 seconds and stops.
(p. 26)

When you select  or **5SEC**, you cannot use the fade-in/fade-out function.

When you select **5SEC**, the remaining tape indicator is not displayed.



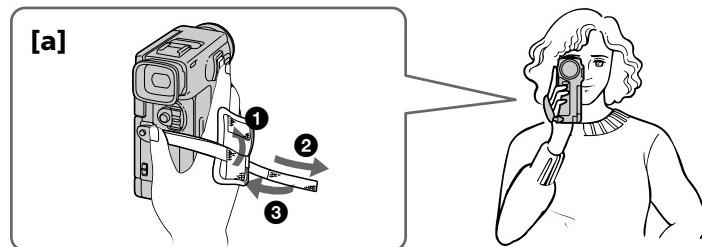
To attach an accessory

Attach an accessory (not supplied) to the accessory shoe.

Hints for better shooting

For hand-held shots, you will get better results by holding the camcorder according to the following suggestions:

- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. [a]



- Place your elbows against your side.
- Hold the camcorder with your left hand to keep it steadier.
- Adjust the LCD panel angle.
- Keep your fingers away from the lens.
- Place your eye firmly against the viewfinder eyecup.
- Be sure not to touch the built-in microphone.
- Be sure not to touch the FOCUS button by accident.
- Use the LCD panel frame or the viewfinder frame as a guide to determine the horizontal plane.
- You can record in a low position to get an interesting recording angle. Lift the LCD panel up to record from a low position. [b]
- You can also record in a high position. Lift the LCD panel down to record from a high position. [c]



Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder. When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm (9/32 inches). Otherwise, the screw may damage the inner parts of the camcorder.

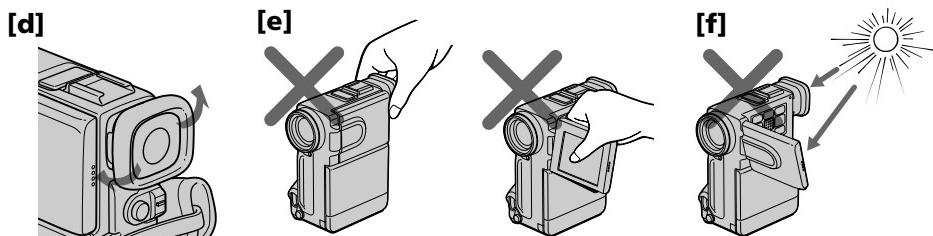
Hints for better shooting

If you wear glasses

You can bend back the eyecup to get a better view of viewfinder [d].

Cautions on the LCD panel and on the viewfinder

- Do not pick up the camcorder by the viewfinder or the LCD panel [e].
- Do not place the camcorder so as to point the viewfinder or the LCD panel toward the sun. The inside of the viewfinder or the LCD panel may be damaged. Be careful when placing the camcorder under sunlight or by a window [f].
- Do not point the lens toward the sun with a close-up lens attached. Doing so may damage the camcorder.

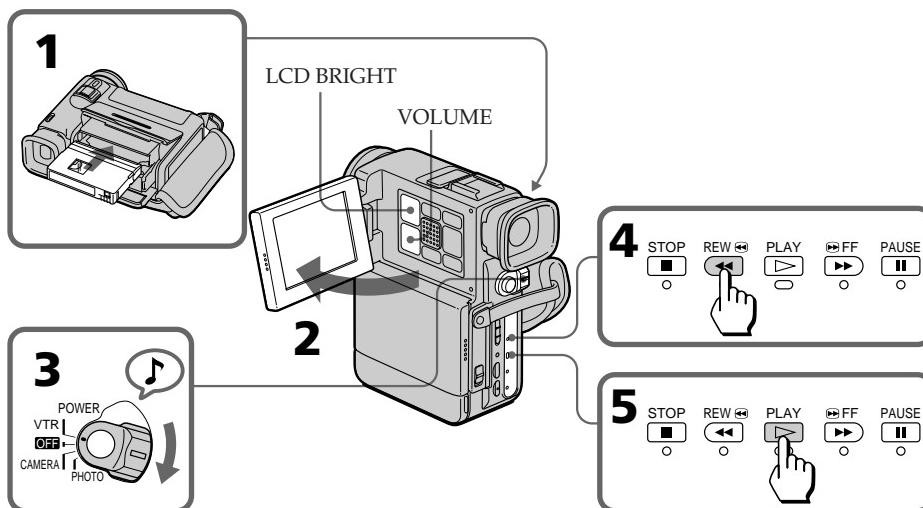


Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder.

- (1) Insert the recorded tape with the window facing out.
- (2) Open the LCD panel.
- (3) While pressing the small green button on the POWER switch, set it to VTR.
The tape transport buttons light up.
- (4) Press **◀◀** to rewind the tape.
- (5) Press **▷▷** to start playback.
- (6) Adjust the volume using VOLUME +/− and the brightness of the LCD screen using LCD BRIGHT +/−.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.



To stop playback, press ■.

To rewind the tape, press □□.

To fast-forward the tape rapidly, press ▢▢.

Using the Remote Commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the R6 (size AA) batteries .

To display the LCD screen/viewfinder screen indicators

Press DISPLAY.

To erase the indicators, press again.

Using headphones

Connect headphones (not supplied) to the AUDIO VIDEO OUT/○ jack (p. 64). You can adjust the volume of the headphones using VOLUME +/−.

Playing back a tape

To view the playback picture in the viewfinder

Close the LCD panel. The viewfinder turns on automatically.

When using the viewfinder, you can monitor the sound only by using headphones.

To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Various playback modes

To view a still picture (playback pause)

Press **II** during playback. To resume playback, press **II** or **>**.

To locate a scene (picture search)

Keep pressing **<<** or **>>** during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)

Keep pressing **<<** while rewinding or **>>** while advancing the tape. To resume normal rewinding or fast-forward, release the button.

To view the picture at 1/3 speed (slow playback)

Press **■▶** on the Remote Commander during playback. For slow playback in reverse direction, press **<**, then press **■▶**. To resume normal playback, press **>**.

To view the picture at double speed

For double speed playback in the reverse direction, press **<**, then press **×2** on the Remote Commander during playback. For double speed playback in the forward direction, press **>**, then press **×2** during playback. To resume normal playback, press **>**.

To view the picture frame-by-frame

Press **<II** or **II>** on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press **>**.

To change the playback direction

Press **<** on the Remote Commander for reverse direction or **>** on the Remote Commander for forward direction during playback. To resume normal playback, press **>**.

Notes on playback

- The sound is muted in the various playback modes.
- During playback other than normal playback, the previous recording may appear in mosaic image. This is not malfunction.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode. To resume playback, press **>**.

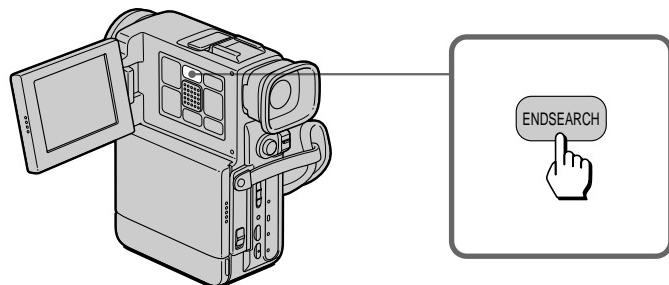
Note on slow playback

The slow playback can be performed smoothly on this camcorder; however, this function does not work for an output signal from the DV IN/OUT jack.

Searching for the end of the picture

You can go to the end of the recorded portion after you record and play back the tape. The tape starts rewinding or fast-forwarding and the last about 5 seconds of the recorded portion plays back. Then the tape stops at the end of the recorded picture (**End Search**).

Open the LCD panel and press END SEARCH during recording standby. This function works when the POWER switch is set to CAMERA, VTR or PHOTO.



Note on End Search

The End Search function does not work once you have ejected the cassette after you recorded in the tape or if you do not record after you have inserted a tape.

Advanced operations

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack, mains, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	Mains	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F100 (supplied), NP-F200
In the car	12 V or 24 V car battery	Sony car battery charger DC-V515

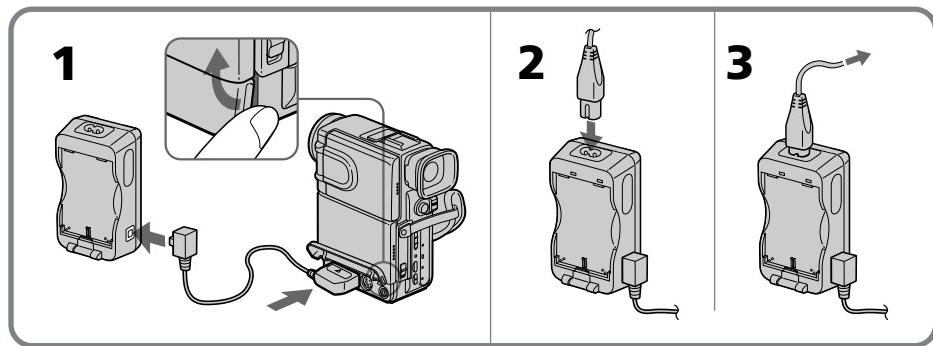
Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the mains

To use the supplied AC power adaptor:

- (1) Open the jack cover and connect the connecting plug on the camcorder to the DC OUT jack on the AC power adaptor using the supplied connecting cord.
- (2) Connect the mains lead to the AC power adaptor.
- (3) Connect the mains lead to mains.



Charging the battery pack

You can charge the battery pack installed in the camcorder by connecting the AC power adaptor to the camcorder and setting the POWER switch to OFF. The CHARGE lamp lights up, and goes out when normal charge is completed. For a full charge, leave the battery pack in place for approximately one hour. Charging time of the supplied NP-F100 battery pack is as follows:

Full charge: approx. 2 hours and 30 minutes

Normal charge: approx. 1 hours and 30 minutes

Charging two battery packs at the same time

Install one battery pack in the camcorder and another one on the AC power adaptor. The CHARGE lamps on the camcorder and on the AC power adaptor light up, and go out when normal charge is completed. For a full charge, leave the battery pack in place for approximately one hour. If either of the CHARGE lamps remains lit, charging both battery packs is not completed. Time taken to charge two NP-F100 battery packs simultaneously is as follows:

Full charge: approx. 2 hours and 40 minutes

Normal charge: approx. 1 hours and 40 minutes

Notes on the CHARGE lamp

- The CHARGE lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the CHARGE lamp does not light, disconnect the AC power adaptor. After about one minute, reconnect the AC power adaptor.

To remove the connecting cord

While pressing the button on the connecting plug, pull out the connecting cord. Never pull the connecting cord itself.

When you use the AC power with the connecting cord, the battery pack installed in the camcorder is not used because the AC power has priority over the battery pack.

WARNING

The mains lead must only be changed at a qualified service shop.

PRECAUTION

The set is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Using a car battery

Use a car battery charger such as Sony DC-V515 (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V). Connect the car battery charger and the camcorder using the supplied DK-626 connecting cord.

Note on the battery pack

You cannot charge the battery pack (NP-F100, NP-F200) using the car battery charger DC-V515.



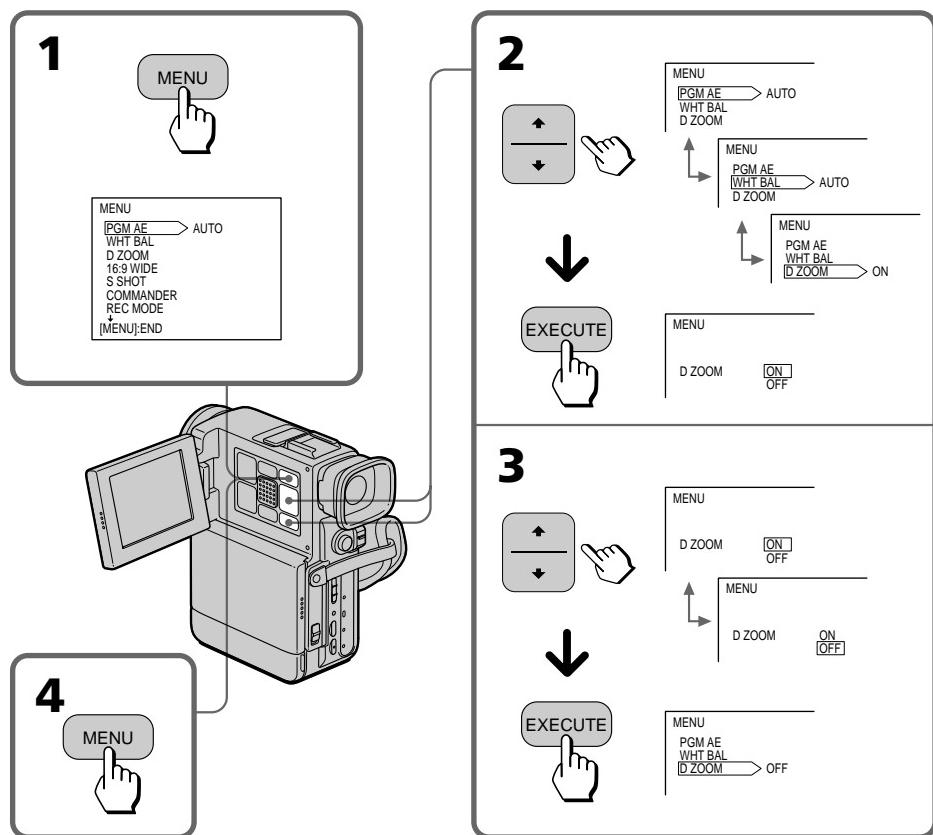
This mark indicates that this product is a genuine accessory for Sony video product.

When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Changing the mode settings

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

- (1) Press MENU to display the menu on the LCD screen.
- (2) Press ↓ or ↑ to select the desired item, then press EXECUTE. Only the selected item is displayed.
- (3) Press ↓ or ↑ to select the desired mode, then press EXECUTE. If you want to change the other modes, repeat steps 2 and 3.
- (4) Press MENU to erase the menu display.



Note on changing the mode settings

Menu items differs depending on the setting of the POWER switch to VTR or CAMERA/PHOTO.

Selecting the mode setting of each item

Items for both CAMERA/PHOTO and VTR modes

COMMANDER <VTR4/OFF/ID/ID SET>

- Select VTR4 when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.
- Select ID when using the Remote Commander set to the ID number.
- Select ID SET when setting the ID number to the Remote Commander.

REC MODE <SP/LP>

- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

BEEP <ON/OFF>

- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

LCD COLOUR

Select this item and change the level of the indicator by pressing + or - to adjust the colour intensity of the picture.

Items for CAMERA/PHOTO mode only

PGM AE* <AUTO/SPORTS/SUNSETMOON/LANDSCAPE>

- Select AUTO to set PROGRAM AE (Auto Exposure) automatically depending on your shooting situation.
- Select SPORTS to set PROGRAM AE to the sports lesson mode.
- Select SUNSETMOON to set PROGRAM AE to the sunset and moon mode.
- Select LANDSCAPE to PROGRAM AE to the landscape mode.

WHT BAL* <AUTO/HOLD/OUTDOOR/INDOOR>

- Normally select AUTO to adjust the white balance automatically.
- Select HOLD when recording monochromatic subject or background.
- Select OUTDOOR when recording in the outdoor mode.
- Select INDOOR when recording in the indoor mode.

D ZOOM <OFF/ON>

- Select OFF not to use the digital zoom.
- Select ON to activate digital zooming. More than 10x zoom is performed digitally.

16:9 WIDE <OFF/ON>

- Normally select OFF.
- Select ON to record a 16:9 wide picture to watch on a wide-screen TV.

S SHOT <ON/OFF>

- Normally select ON.
- Select OFF when you do not have to worry about camera-shake.

REC LAMP <ON/OFF>

- Normally select ON.
- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.

CLOCK SET

Select this item to reset the date or time.

Changing the mode settings

Items for VTR mode only

AUDIO MIX*

Select this item and adjust the balance between the stereo 1 and stereo 2 by pressing ↓ or ↑.

DATA CODE <DATE/CAM or DATE>

- Select DATE/CAM to display date and recording data during playback.
- Select DATE to display date during playback.

* These settings are retained even when the battery is removed, as long as the vanadium-lithium battery is charged. As far as the items without an asterisk are concerned, their settings return to the default 5 minutes or more after the battery is removed.

When recording a close subject

When REC LAMP is set to ON, the red camera recording lamp on the front of the camcorder may reflect on the subject if it is close. In this case, we recommend you set REC LAMP to OFF.

Note

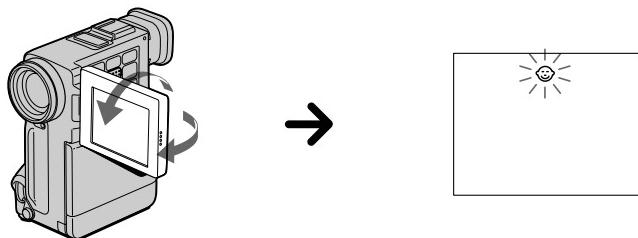
When playing back a tape recorded in the 16-bit mode, you cannot adjust the balance in AUDIO MIX.

Letting the subject monitor the shot

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel up vertically. When you turn the LCD panel 180 degrees, the ☺ indicator appears on the LCD screen (**mirror mode**) and the time code and remaining tape indicators disappear.

You can also use the Remote Commander.

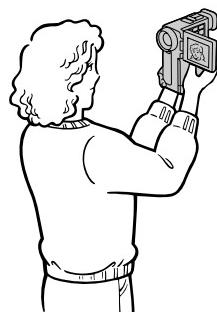


To cancel mirror mode

Turn the LCD panel down toward the camcorder body.

Notes on mirror mode

- Using the mirror mode, you can record yourself while watching yourself on the LCD screen.
- The picture on the LCD screen appears as a mirror-image while recording in mirror mode. **II** appears in Standby mode, and **●** during recording. Other indicators appear as mirror-image. Some indicators do not appear.
- While recording in mirror mode, you cannot operate the following functions: MENU, ZERO SET MEMORY on the Remote Commander.



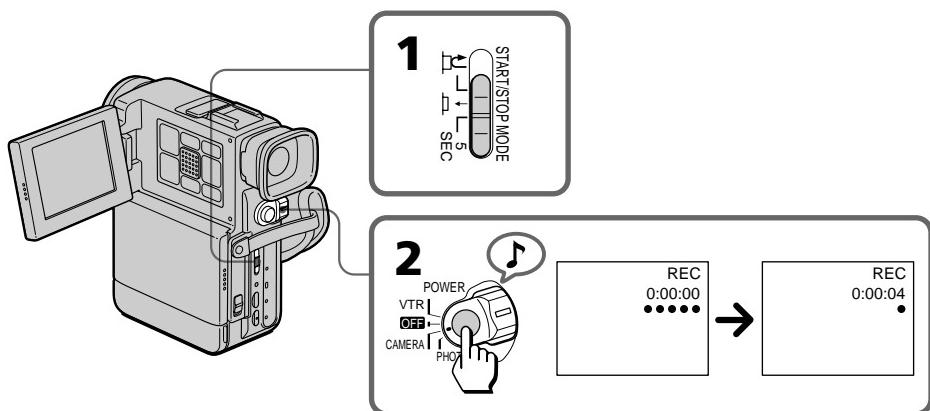
Shooting scenery in several short takes

Long, continuous shots of scenery tend to be dull, and have to be edited to make an interesting video. With 5SEC. REC (5-second recording) mode, the camcorder records for only 5 seconds and then switches to Standby mode, so that you will automatically take a series of quick shots resulting in a lively video.

(1) Set START/STOP MODE to **5SEC**. Five dots appear on the LCD screen or in the viewfinder.

(2) Press START/STOP. Recording starts.

The dots disappear at a rate of one per second. When 5 seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.



To extend the recording time

Press START/STOP again before all the dots disappear. Recording continues for 5 seconds from the moment you press START/STOP.

To cancel 5-second recording

Set START/STOP MODE to **REC**. If you set the switch while recording, recording continues.

Note on 5-second recording

You cannot use FADER function during 5-second recording.

Fade-in and fade-out

You can fade in or out to give your recording a professional appearance.

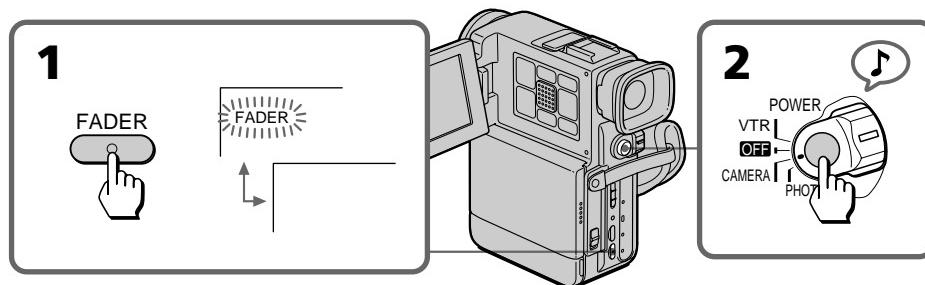
When fading in, the picture gradually fades in from black while the sound increases.
When fading out, the picture gradually fades to black while the sound decreases.

When fading in [a]

- (1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.
- (2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

- (1) During recording, press FADER. The fade indicator starts flashing.
- (2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.



To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER until the fade indicator disappears.

When the START/STOP MODE control is set to Δ or 5SEC

You cannot use the fade-in/fade-out function.

Photo recording

You can record a still picture like a photograph for about seven seconds. This mode is useful when you want to enjoy a picture such as a photograph or when you print a picture using a video printer (not supplied). You can record about 510 pictures on a 60-minute tape.

Shutter speed is automatically adjusted up to 1/1000 depending on the exposure.

(1) While pressing the small green button on the POWER switch, set it to PHOTO.

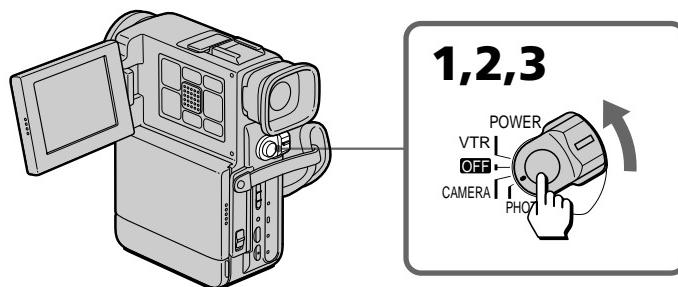
(2) Keep pressing START/STOP lightly until a still picture and "PHOTO CAPTURE" appear on the LCD screen or in the viewfinder.

Recording does not start yet. To change the still picture, release START/STOP, select still picture again, and keep pressing START/STOP lightly again.

If you press the PHOTO button on the Remote Commander when a still picture appears on the LCD screen or in the viewfinder, the camcorder will record that still picture. However, you cannot select other still pictures by using this button.

(3) Press START/STOP deeper.

"PHOTO REC" flashes and the still picture on the LCD screen or in the viewfinder is recorded for about seven seconds. The sound during those seven seconds is also recorded and the pictures appear like an animation on the LCD screen or in the viewfinder. You cannot change the POWER switch or press START/STOP during recording.

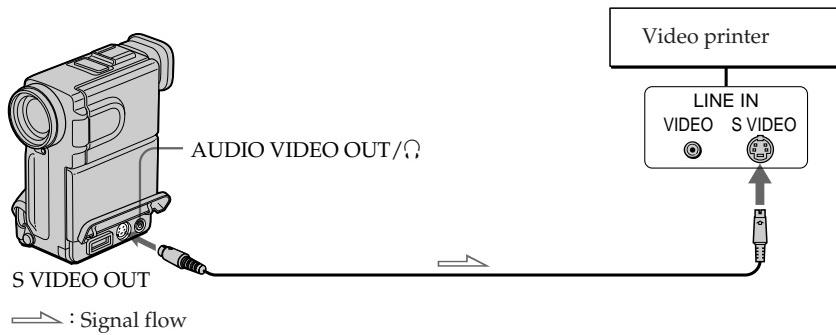


Note on the still picture

When the still picture recorded on this camcorder is played back on the other VCR, the picture may be blurred. This is not malfunction.

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the supplied S video connecting cable. Refer to the instruction manual of the video printer as well.



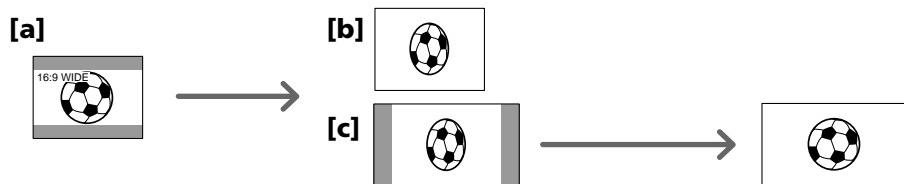
If the video printer is not equipped with S VIDEO input

Use the supplied A/V connecting cable. Connect it to the AUDIO VIDEO OUT/○ jack and connect the yellow plug of the cable to the VIDEO input of the video printer.

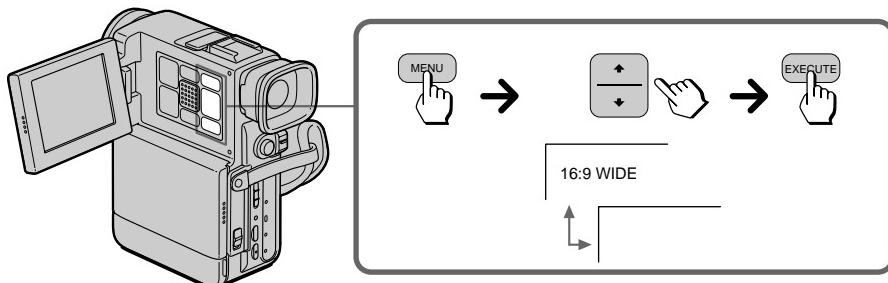
Using the wide mode function

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9WIDE).

The picture with black bands at the top and the bottom on the LCD screen or in the viewfinder [a] is normal. The picture on a normal TV [b] is horizontally compressed. You can watch the picture of normal images on a wide-screen TV [c].



- (1) Press MENU to display the menu on the LCD screen.
- (2) Press ↓ or ↑ to select 16:9 WIDE, then press EXECUTE.
16:9WIDE appears on the LCD screen.
- (3) Press ↓ or ↑ to select ON, then press EXECUTE.
- (4) Press MENU to erase the menu display.



To cancel wide mode

Select OFF in the menu system.

To watch the tape recorded in wide mode

To watch the tape recorded in 16:9WIDE mode, set it to full mode. For details, refer to the instruction manual of your TV.

Note that the picture recorded in 16:9WIDE mode looks compressed on a normal TV.

Note on wide mode

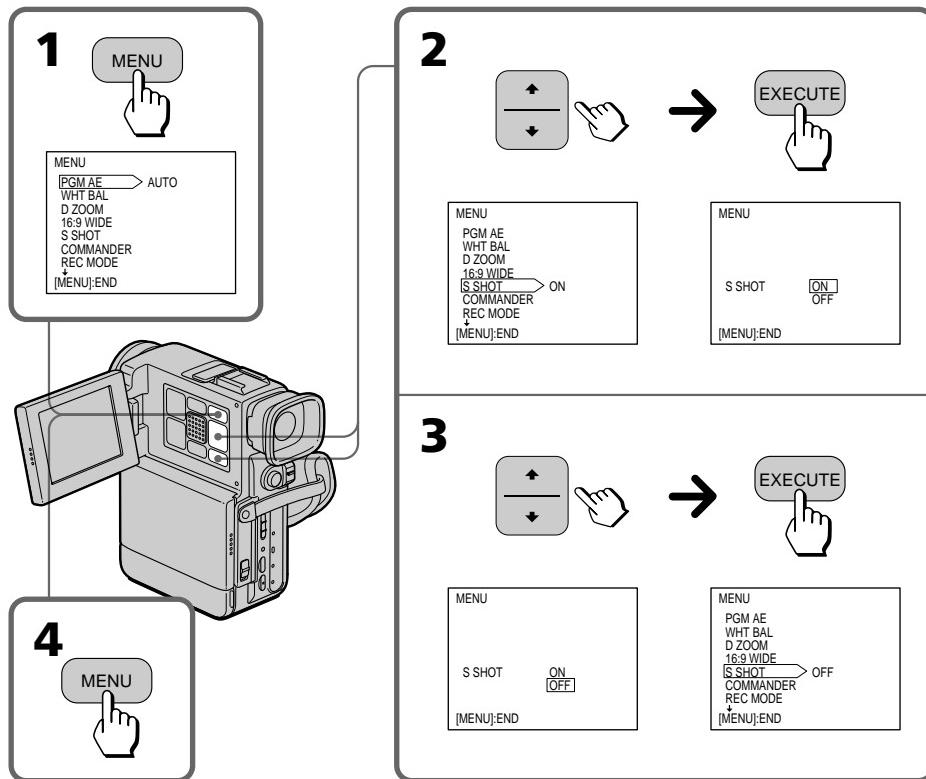
You cannot select or cancel the wide mode during recording.

Releasing the SteadyShot function

When you shoot, the  indicator appears on the LCD screen or in the viewfinder. This indicates that the SteadyShot function is working and the camcorder compensates for camera-shake.

You can release the SteadyShot function when you do not need to use the SteadyShot function. Do not use the SteadyShot function when shooting a stationary object with a tripod.

- (1) Press MENU to display the menu on the LCD screen.
- (2) Press  or  to select S SHOT, then press EXECUTE.
- (3) Press  to select OFF, then press EXECUTE.
- (4) Press MENU to erase the menu display.



To activate the SteadyShot function again

Select ON in step 3, then press EXECUTE.

Notes on the SteadyShot function

- The SteadyShot function will not correct excessive camera-shake.
- When the SteadyShot function is released, the  indicator does not appear.

Using the PROGRAM AE function

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can get a capture high-speed action, record night views, etc.

Selecting the best mode

Select a proper PROGRAM AE mode referring to the description on each PROGRAM AE mark in the viewfinder or the PROGRAM AE mode indication on the LCD screen or in the viewfinder.



♂ / SPORTS: Sports lesson mode [a]

Capturing high-speed action in sports such as golf or tennis

♀ / SUNSETMOON: Sunset & Moon mode [b]

Recording sunset, night views, fireworks or neon signs

■ / LANDSCAPE: Landscape mode [c]

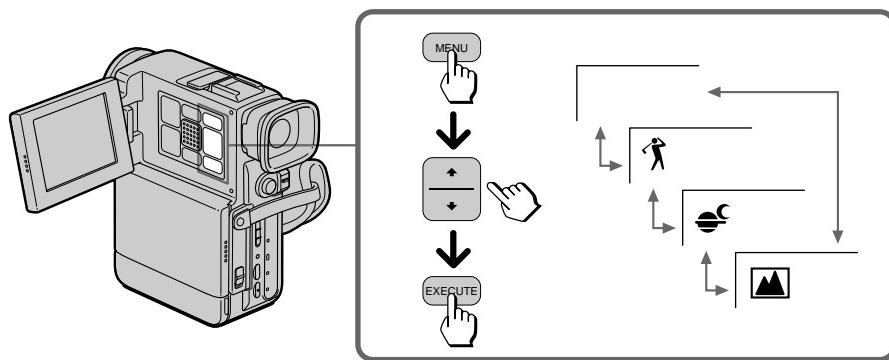
Recording a landscape through a window or wire net

Notes on focus setting

- In the Sports lesson mode, you cannot take close-ups because the camcorder is set to focus only on subjects in the middle to far distance.
- In the Sunset & Moon and Landscape modes, the camcorder is set to focus only on distant subjects.

Using the PROGRAM AE function

- (1) While the camcorder is in recording or Standby mode press MENU to display the menu on the LCD screen.
- (2) Press **↓** or **↑** to select PGM AE, then press EXECUTE.
- (3) Press **↓** or **↑** to select the desired mode, then press EXECUTE. If you want to change the other modes, repeat steps 2 and 3.
The symbol of the selected mode appears on the LCD screen.
- (4) Press MENU to erase the menu display.



To return to automatic adjustment mode

Select AUTO in the PGM AE menu. The symbol of the PROGRAM AE mode disappears.

Note on shutter speed

The shutter speed in Sports lesson mode is from 1/250 to 1/4000.

Note on locking the exposure

If the exposure is locked when using the PROGRAM AE function, the exposure is automatically released when the PROGRAM AE mode is changed.

Notes on white balance setting

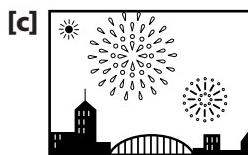
- In the Sunset & Moon and Landscape modes, the white balance is automatically set to outdoor mode.
- If the white balance is set to AUTO, it is automatically set when using the PROGRAM AE function.

Adjusting the white balance

White balance adjustment makes white subjects look white and allows more natural colour balance for camera recording. Normally white balance is automatically adjusted. You can obtain better results by adjusting the white balance manually when lighting conditions change quickly or when recording outdoors: e.g., neon signs, fireworks.

Selecting the Appropriate Mode

Select the appropriate white balance mode under the following conditions.



❖ Indoor mode

- Lighting condition changes quickly. **[a]**
- Too bright place such as photography studios
- Under sodium lamps or mercury lamps

❖ Outdoor mode

- Under a colour matching fluorescent lamp
- Recording a sunset/sunrise, just after sunset, just before sunrise **[b]**, neon signs, or fireworks **[c]**

HOLD mode

Recording monochromatic subject or background

Setting the White Balance

(1) Press MENU to display the menu on the LCD screen during recording or Standby mode.

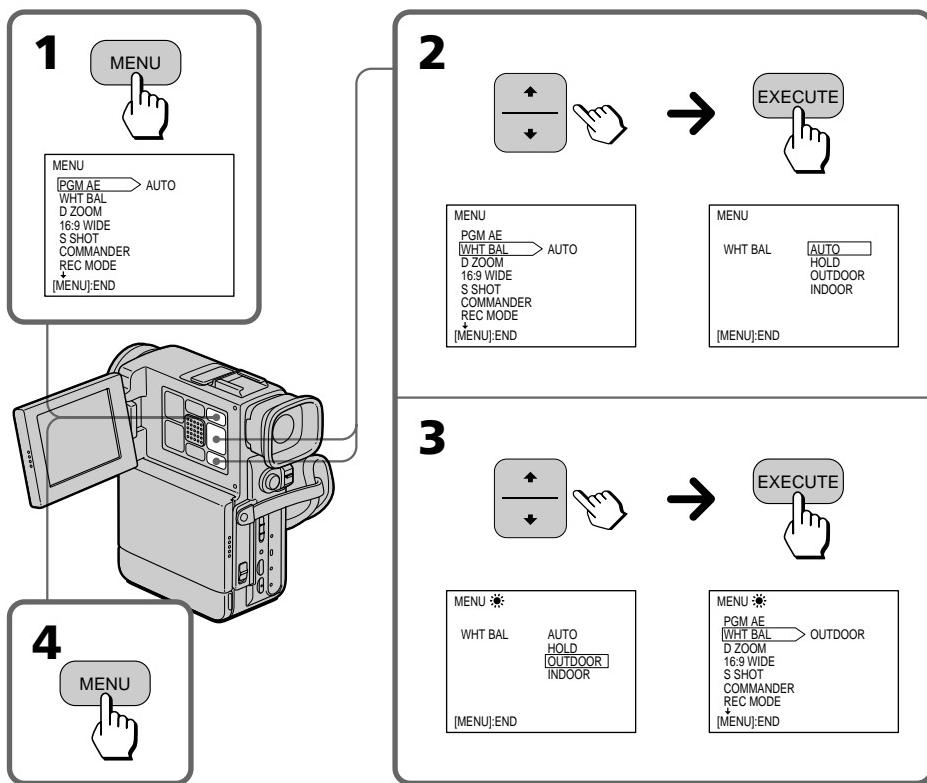
(2) Press ↓ or ↑ to select WHT BAL, then press EXECUTE.

(3) Press ↓ or ↑ to select the appropriate white balance mode, then press EXECUTE.

Each time you press the button, the indicator changes:

AUTO (no indicator) → HOLD → (outdoor) → (indoor)

(4) Press MENU to erase the menu display.



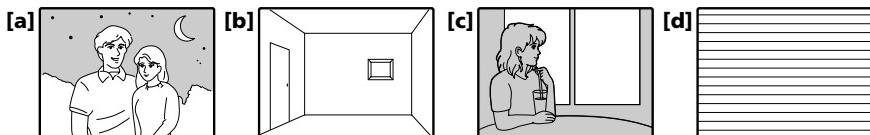
To return to automatic white balance mode

Select AUTO in step 3, then press EXECUTE.

Focusing manually

When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.

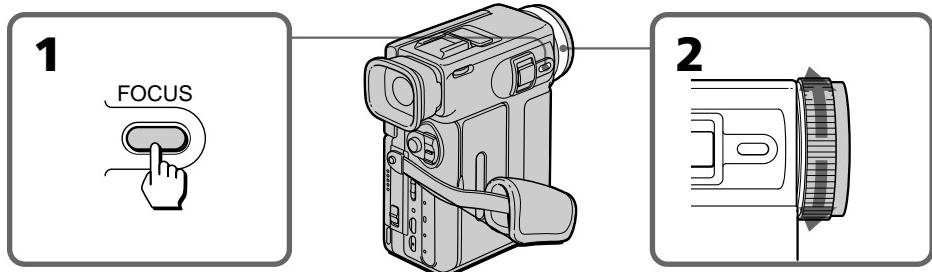


- Insufficient light [a]
- Subjects with little contrast — walls, sky, etc. [b]
- Too much brightness behind the subject [c]
- Horizontal stripes [d]
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting light
- Shooting a stationary subject when using a tripod

Focusing manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length.

- (1) Press FOCUS lightly. The indicator appears on the LCD screen or in the viewfinder.
- (2) Turn the focus ring to focus on the subject.



To focus in infinity

Press FOCUS deeply. indicator appears on the LCD screen or in the viewfinder.

To return to the autofocus mode

Press FOCUS lightly to turn off or indicator.

Shooting in relatively dark places

Shoot at wide-angle after focusing in the telephoto position.

If lights up

Subject is too close.

Locking the exposure

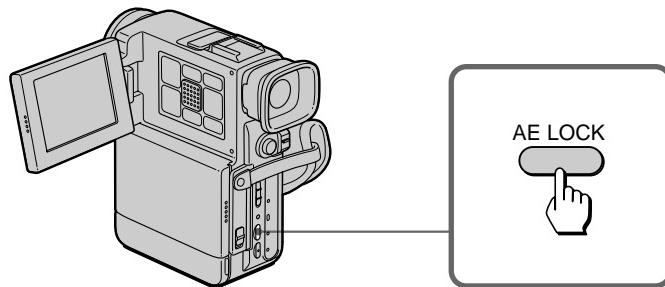
When to lock the exposure

Lock the exposure by pressing the AE LOCK under the following cases.

- The background is too bright (backlighting)
- Insufficient light: most of the picture is dark
- Bright subject and dark background
- To record the darkness faithfully
- The subject is in the spotlight on a stage

Locking the exposure

Press AE LOCK during recording, standby or PHOTO mode. The AE LOCK indicator appears on the LCD screen or in the viewfinder. The exposure is locked at the actual brightness.



To return to automatic exposure mode

Press AE LOCK to turn off the AE LOCK indicator.

Shooting with the sun behind you

If the light source is behind your subject, or in the following situation, the subject will be recorded too dark.

- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark

We recommend you to use a video light (not supplied). To get the best colour, you must maintain a sufficient light level.

Watching on a TV screen

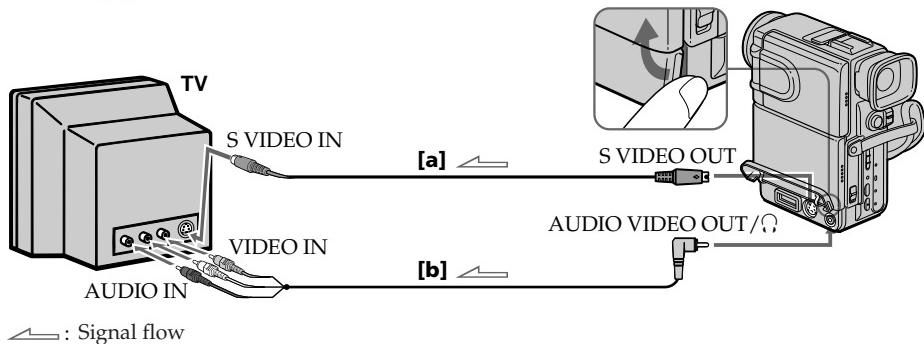
You can use the camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect the camcorder to your TV. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use the mains for the power source.

If you connect directly to TV

Open the jack cover and connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR. Procedure to play back is the same as when playing back on the LCD screen or in the viewfinder. Turn down the volume of the camcorder.

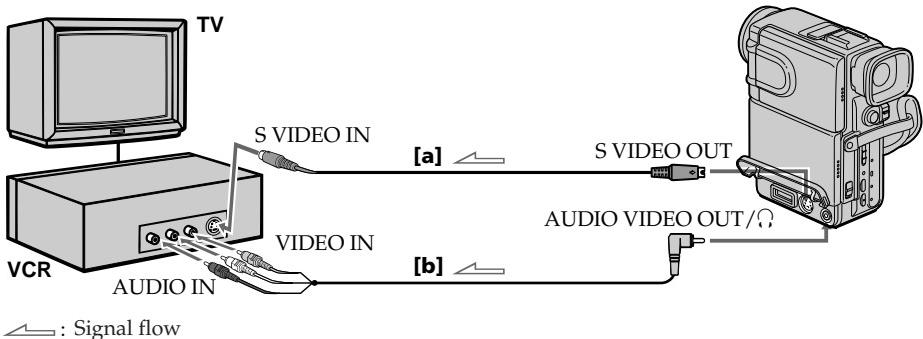
To get higher quality pictures in DV format, connect the camcorder to your TV using the S video connecting cable.

If you are going to connect the camcorder using the supplied S video connecting cable [a], you do not need to connect the yellow (video) plug of the A/V connecting cable [b].



If your TV is already connected to a VCR

Open the jack cover and connect the camcorder to the LINE IN inputs on the VCR by using the supplied cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.



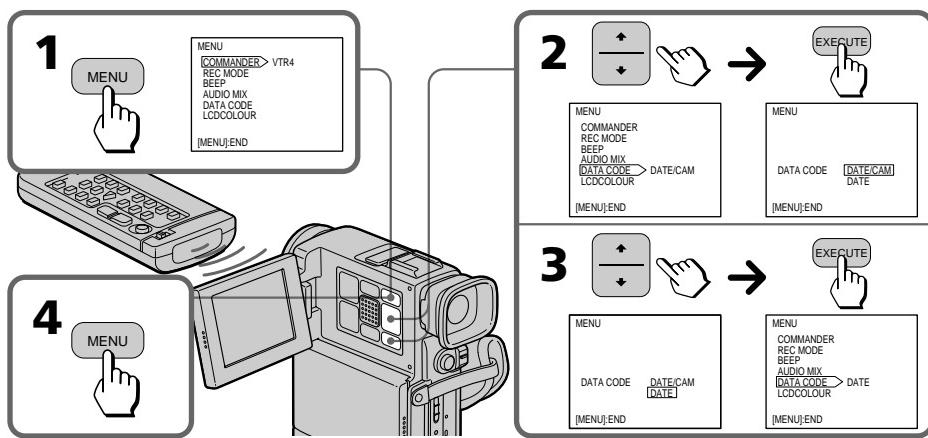
If your VCR or TV is a monaural type

Connect the yellow plug of the A/V connecting cable for video to the VCR or TV. Connect only the white or red plug for audio to the VCR or TV. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.

Displaying recording data – data code function

You can display recording data (date/time or various settings when recorded) on the LCD screen or in the viewfinder during playback (Data Code). The Data Code is also displayed on the TV.

- (1) Press MENU to display the menu on the LCD screen.
- (2) Press ↓ or ↑ to select DATA CODE, then press EXECUTE.
- (3) Press ↓ or ↑ to select DATE/CAM or DATE, then press EXECUTE.
- (4) Press MENU to erase the menu display.



To display recording data during playback

Press DATA CODE on the Remote Commander.

Each time you press the button, the indicator changes as follows:

When DATE/CAM is selected in the menu system: date → various settings (AE LOCK, white balance, gain, shutter speed, aperture value) → no indicator.

When DATE is selected in the menu system:

date → no indicator.

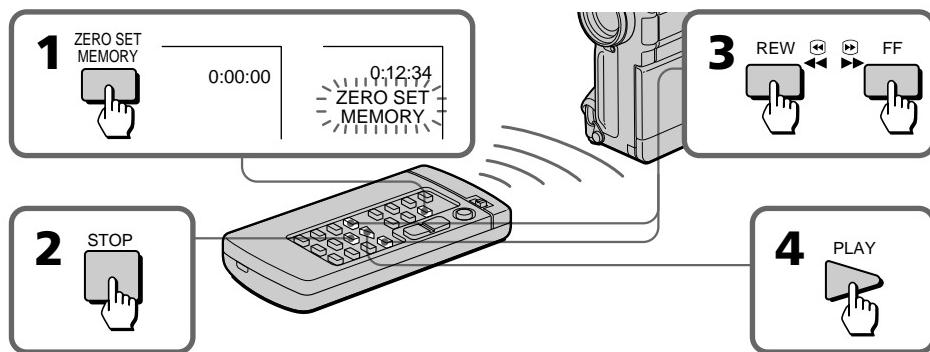
When bars (---) appear

- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.

Returning to a pre-registered position

Using the Remote Commander, you can easily go back to the desired point on a tape after playback.

- (1) During playback, press ZERO SET MEMORY at the point you later want to locate. The counter shows "0:00:00" and "ZERO SET MEMORY" appears on the LCD screen or in the viewfinder.
- (2) Press ■ when you want to stop playback.
- (3) Press ▲ to rewind or press ▼ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero. "ZERO SET MEMORY" disappears and the time code appears.
- (4) Press ▶.



Notes on the tape counter

There may be a discrepancy of several seconds from the actual time or time code.

Notes on ZERO SET MEMORY

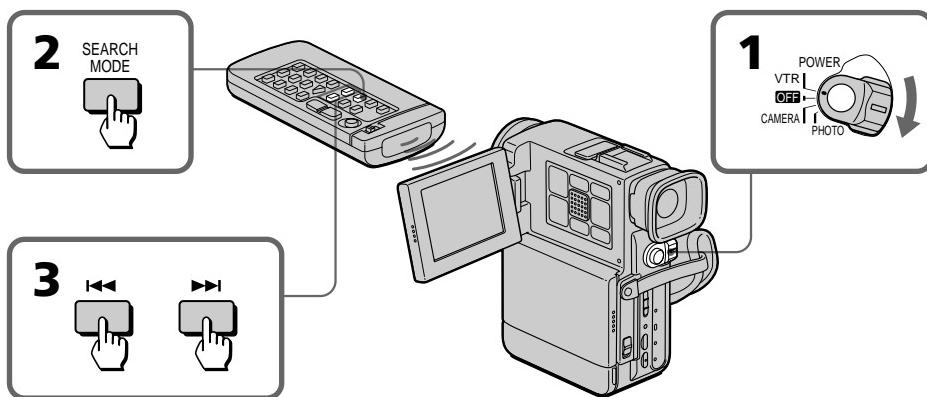
- When you press ZERO SET MEMORY, the counter's zero point is memorized. Press ZERO SET MEMORY again before step 3 to cancel the memory .
- Zero set memory may not function when there is a blank portion between pictures on a tape.
- Zero set memory functions in recording standby mode.

Locating the beginning of each scene

You can search the beginning of the recorded picture with the date using the Remote Commander. You can also search the photo-recorded pictures only in the backward and forward direction from the preset position.

- (1) Make sure that the POWER switch is set to VTR.
- (2) Press SEARCH MODE on the Remote Commander to select date search (search with the date) or photo search (search the photo-recorded pictures only).
- (3) Press **▶▶** for upward or **◀◀** for downward on the Remote Commander to select the desired picture.

Each time you press **▶▶** or **◀◀**, the camcorder searches for the next scene.



To stop searching

Press ■ STOP.

When you use a recorded tape which has blank portions between pictures
The camcorder may not search for the recorded picture or data may not be stored.

Note on cassette memory

The cassette memory function cannot be used with this camcorder.

Notes on searching

- The camcorder may not search if the beginning of the search portion is too close to the tape head position.
- When you use date search, the camcorder plays back the search picture, and when you use photo search, the camcorder enters playback pause at the point.

Editing onto another tape

You can create your own video programme by editing with any other DV, mini DV, 8 mm, Hi8, VHS, S-VHS, VHSC, S-VHSC or Betamax VCR that has audio/video inputs. You can edit with little deterioration of picture and sound quality when using the DV connecting cable.

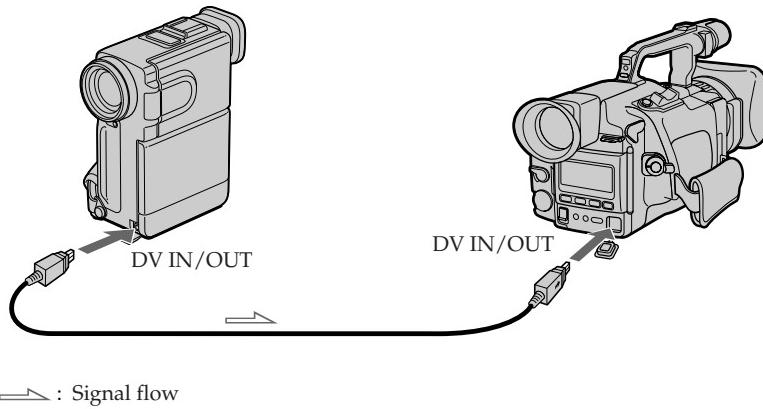
Before editing

Connect the camcorder to the VCR using the VMC-2DV DV connecting cable (not supplied) or the supplied A/V connecting cable.

Use this camcorder as a player.

Using the DV connecting cable

Simply connect the VMC-2DV DV connecting cable (not supplied) to DV IN/OUT and to DV IN/OUT of the DV products.



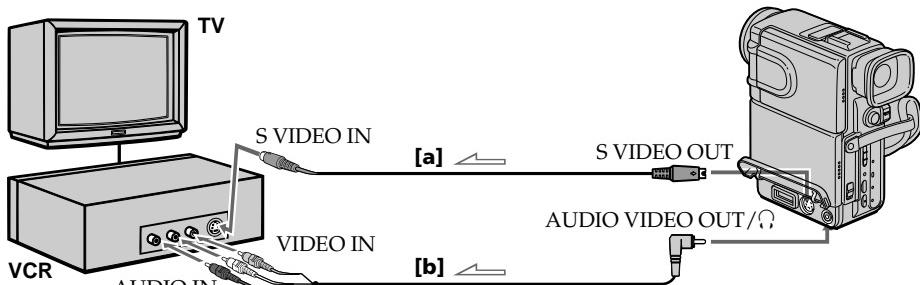
→ : Signal flow

About DV connecting cable

You can record picture, sound and system data at the same time on the DV products by using the DV connecting cable only.

Using the S video connecting cable [a] or A/V connecting cable [b]

Set the input selector on the VCR to LINE.



→ : Signal flow

Starting editing

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert your recorded tape into the camcorder.
- (2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then press **II** to set the camcorder in playback pause mode.
- (3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
- (4) Press **II** on the camcorder and VCR simultaneously to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press **■** on both the camcorder and the VCR.

Notes on editing when using the DV connecting cable

- You can connect one VCR only.
- You can use this camcorder as a recorder and also as a player without reconnecting the DV connecting cable. When using as a recorder, make sure DV IN appears on the LCD screen or in the viewfinder. DV IN may also appear on the connected VCR.
- When using this camcorder as a recorder, only the recording buttons on the Remote Commander can be used. Press both red and black buttons simultaneously. When using this camcorder as a recorder, the pictures on a monitor may be uneven, however, these on the LCD screen, in the viewfinder or recorded pictures are not affected.
- If you record playback pause picture via the DV IN/OUT jack, the recorded picture becomes rough.

Notes on editing when using the A/V connecting cable

- Press DATA CODE button to turn off the display indicators. Otherwise, the indicators will be recorded on the tape.
- If your TV or VCR is a monaural type, connect the yellow plug of the A/V connecting cable for video to the TV or VCR. Connect only the white or red plug for audio to the TV or VCR. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.
- You can edit precisely by connecting VMC-LM7 adaptor (not supplied) and a LANC cable to this camcorder and other video equipment having fine synchro-editing function, using this camcorder as a player.

Replacing recording on a tape – insert editing

You can insert a new scene from a VCR onto your originally recorded tape by specifying starting and ending points.

Connection is the same as in "Using the DV connecting cable" on page 42. In recording and recording pause mode, DV IN/OUT jack automatically works as input jack.

- (1) While pressing the small green button on the POWER switch, set it to VTR.
- (2) On the VCR, locate the start point to be inserted and set it to playback pause mode.
- (3) On the camcorder, press ▶ to set it to playback mode, and then locate the point where the insert should end by pressing ◀◀ or ▶▶. Then press ■ to set it to playback pause mode.
- (4) Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the insert is stored in memory.
- (5) On the camcorder, locate the point where the insert should begin by pressing ◀◀, then press ● REC on the Remote Commander to set it to recording pause mode.
- (6) Press ■ on the camcorder and the VCR simultaneously to start insert editing. The insert editing stops automatically near the counter's zero point. Press ■ to set the camcorder to stop mode.

To change the end point

Press ZERO SET MEMORY on the Remote Commander so that the ZERO SET MEMORY indicator disappears and begin from step 3.

To record without setting the end point

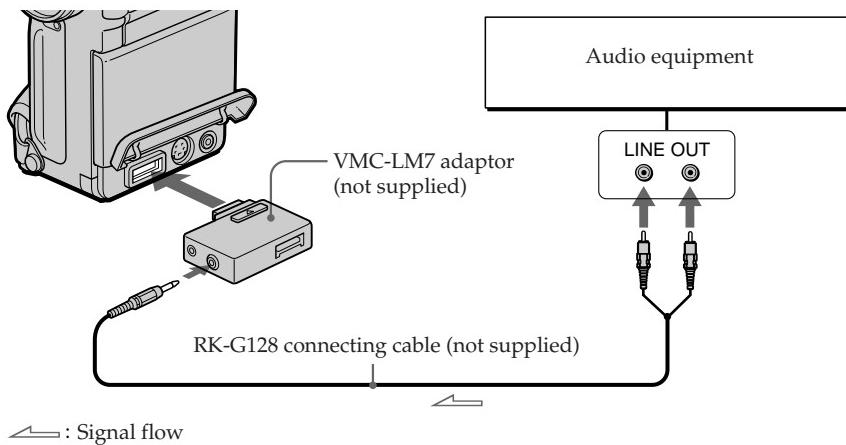
Skip steps 3 and 4. Press ■ when stopping insert editing.

Notes on the inserted picture

- The picture may be distorted at the end of the inserted portion when it is played back.
- The picture and sound recorded on the portion where you insert a new scene will be erased when you insert a new scene.
- If you insert a new scene (picture and sound) on a tape recorded by other camcorder (including DCR-PC7E), the picture and sound quality may become worse.

Audio dubbing

You can record an audio sound to add to the original sound on a tape by connecting audio equipment or a microphone. If you use the VMC-LM7 adaptor (not supplied) to connect the audio equipment, you can add a sound on your recorded tape by specifying starting and ending points. The original sound will not be erased. You can only operate with the Remote Commander.



▲ : Signal flow

When using an external microphone, connect it to the MIC jack of the VMC-LM7 adaptor.

If you record the sound using the built-in microphone, you do not need to connect the VMC-LM7 adaptor.

Notes on audio dubbing

- A new sound cannot be recorded on a tape already recorded in the 16-bit mode (32 kHz, 44.1 kHz or 48 kHz).
- When an external microphone is not connected, the recording will be made through the built-in microphone of the camcorder.
- A new sound cannot be recorded on a tape already recorded in the LP mode.
- If you add a new sound on a tape recorded by other camcorder (including DCR-PC7E), the sound quality may become worse.

Audio dubbing

Recording an audio sound on a recorded tape

- (1)** Insert your recorded tape into the camcorder.
- (2)** While pressing the small green button on the POWER switch, set it to VTR.
- (3)** On the camcorder, press ▶ to set it to playback mode, and then locate the point where the recording ends by pressing ◀◀ or ▶▶. Then press ■ to set it to playback pause mode.
- (4)** Press ZERO SET MEMORY on the Remote Commander. The ZERO SET MEMORY indicator flashes and the end point of the recording is stored in memory.
- (5)** On the camcorder, locate the point where the recording should begin by pressing ◀◀ or ▶▶. Then press ■ to set it to playback pause mode.
- (6)** Press AUDIO DUB on the Remote Commander.
- (7)** Press ■ on the camcorder and at the same time start playing back the audio you want to record. The new sound will be recorded in stereo 2. The recorded sound in stereo 1 is not heard.

The recording stops automatically near the counter's zero point. Press ■ to set the camcorder to stop mode.

You can add the sound not using zero set memory function.

To change the end point

Press ZERO SET MEMORY on the Remote Commander so that the ZERO SET MEMORY indicator disappears and begin from step 3.

To play back the new recorded sound

Adjust the balance between the original sound (stereo 1) and the new sound (stereo 2) by selecting AUDIO MIX in menu system.

Additional information

Charging the vanadium-lithium battery in the camcorder

Your camcorder is supplied with a vanadium-lithium battery installed so as to retain the date and time, etc., regardless of the setting of the POWER switch. The vanadium-lithium battery is always charged as long as you are using the camcorder. The battery, however, will get discharged gradually if you do not use the camcorder. It will be completely discharged in about 1/2 year if you do not use the camcorder at all. Even if the vanadium-lithium battery is not charged, it will not affect the camcorder operation. To retain the date and time, etc., charge the battery if the battery is discharged. The following are charging methods:

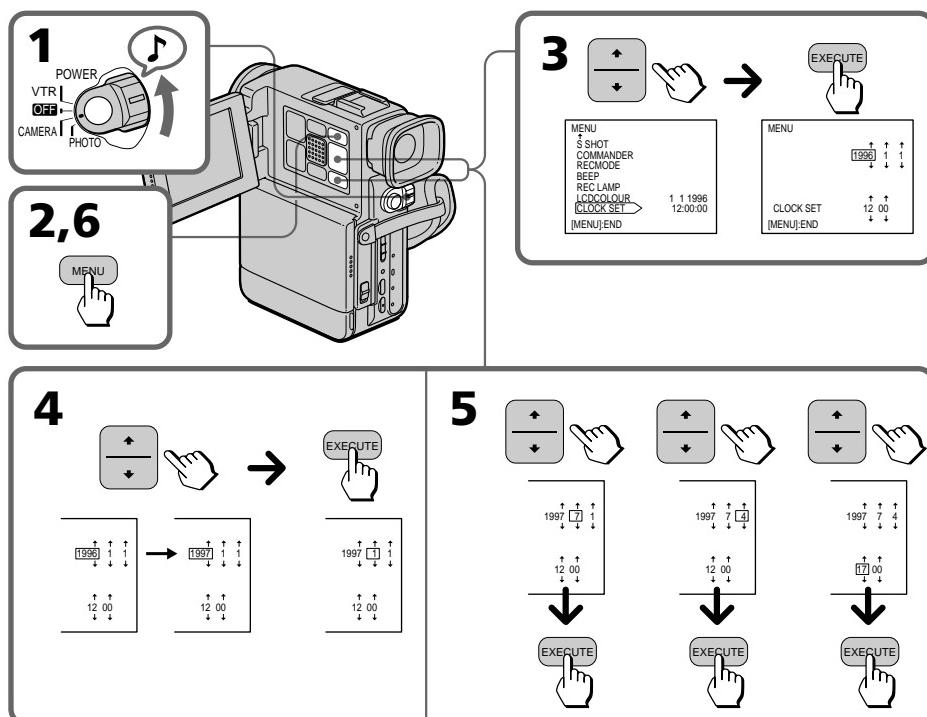
- Connect the camcorder to mains using the supplied AC power adaptor, and leave the camcorder with the POWER switch turned off for more than 24 hours.
- Or, install the fully charged battery pack in the camcorder, and leave the camcorder with the POWER switch turned off for more than 24 hours.

Additional information

Resetting the date and time

The date and time are set at the factory. Set the time according to your local time. If you do not use the camcorder for about a year, the date and time settings may be released (bars may appear) because the vanadium-lithium battery installed in the camcorder will have been discharged. In this case, first charge the vanadium-lithium battery, then reset the date and time.

- (1) While pressing the small green button on the POWER switch, set it to CAMERA.
- (2) Press MENU to display the menu on the LCD screen.
- (3) Select CLOCK SET, then press EXECUTE.
- (4) Press ↓ or ↑ to adjust the year, and then press EXECUTE.
- (5) Set the month, day, hour and minutes by pressing ↓ or ↑ and pressing EXECUTE.
- (6) Press MENU to erase the menu display.



To correct the date and time setting

Repeat steps 2 to 5.

The year indicators changes as follows:

1996 → 1997 → ... 2000 ... → 2029

Note on the time indicator

The internal clock of this camcorder operates on a 24-hour cycle.

Usable cassettes and playback modes

Selecting cassette types

You can use the mini DV cassette only. You cannot use any other 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC or Betamax cassette.

When you play back

Copyright signal

When you play back

Using this camcorder, you cannot play back a tape that has recorded a copyright control signals for copyright protection of software. "COPY INHIBIT" appears on the LCD screen, in the viewfinder or on the TV screen if you try to play back such a tape. This camcorder does not record copyright control signals on the tape when it records.

When you record

You cannot use this camcorder and the DV connecting cable to copy a tape that has recorded the copyright control signals for copyright protection of software. "COPY INHIBIT" appears on the LCD screen, in the viewfinder or on the TV screen if the play back signal of such a tape is input to this camcorder.

Audio mode

12-bit mode: The original sound can be recorded in stereo 1, and the new sound in stereo 2 in 32 kHz. The balance between stereo 1 and stereo 2 can be adjusted by selecting AUDIO MIX in the menu system during playback. Both sounds can be played back.

16-bit mode: A new sound cannot be recorded but the original sound can be recorded in high quality. Moreover, it can also play back sound recorded in 32 kHz, 44.1 kHz or 48 kHz. When playing back a tape recorded in the 16-bit mode, 16BIT indicator appears on the LCD screen or in the viewfinder.

You cannot record in the 16-bit mode using this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator on the LCD screen or in the viewfinder shows the recording mode SP/LP.

Note on cassette memory

The cassette memory function cannot be used with this camcorder.

Usable cassettes and playback modes

Notes on the mini DV cassette

To prevent accidental erasure

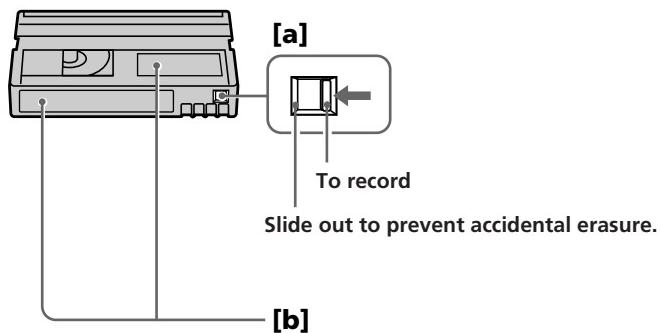
Slide out the protect tab on the cassette so that the red portion is visible. [a]

When affixing a label on the mini DV cassette

Be sure to affix a label on only the location as illustrated below so as not to cause malfunction of the camcorder. [b]

After using the mini DV cassette

Rewind the tape to the beginning, put the cassette in its case, and store it in an upright position.



We recommend to use an ME cassette

You can get the highest quality pictures with this camcorder using an ME cassette which is the highest quality cassette.

You may not get as good quality with lesser quality cassettes.

Tips for using the battery pack

This section shows you how you can get the most out of your battery pack.

Preparing the battery pack

Always carry additional batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

To save battery power

Do not leave the camcorder in Standby mode when not recording to save the battery power.

A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking at the LCD screen or through the viewfinder, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to replace the battery pack

While you are using your camcorder, the remaining battery indicator on the LCD screen or in the viewfinder decreases gradually as battery power is used up [a].

The remaining time in minutes also appears.



When the remaining battery indicator reaches the lowest point, the \square indicator appears and starts flashing in the viewfinder.

When the \square indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, set the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.

Depending on conditions, the \square indicator may flash, even if there are 5 to 10 minutes remaining.

Notes on the rechargeable battery pack

Caution

Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern, and is normal.

Tips for using the battery pack

"InfoLITHIUM" battery pack

The "InfoLITHIUM" battery pack is a lithium battery pack which can exchange data with compatible video equipment about its battery consumption.

Sony recommends that you use the "InfoLITHIUM" battery pack with video equipment having the  InfoLITHIUM mark.

When you use this battery pack with video equipment having the  InfoLITHIUM mark, the video equipment will indicate the remaining battery time in minutes.* However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

- * The indication may not be accurate depending on the condition and environment which the equipment is used under.

Battery pack care

- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the +, - and C terminals with a soft cloth or paper.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Maintenance information and precautions

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the **■** indicator flashes. If this happens, none of the function except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When **▲** indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

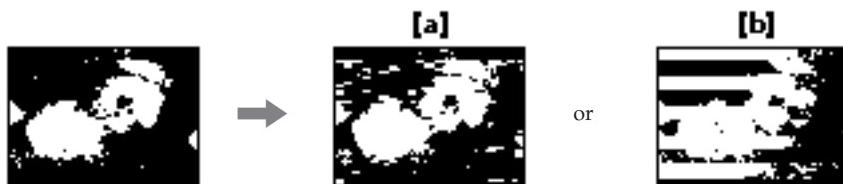
- (1) Be sure to tightly seal the plastic bag containing the camcorder.
- (2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads.

The video heads may be dirty when:

- mosaic-pattern noise appears on the playback picture
- playback pictures do not move
- playback pictures are hardly visible
- playback pictures do not appear
- the **×** indicator and “**CLEANING CASSETTE**” message appear one after another or the **×** indicator flashes on the LCD screen or in the viewfinder



If **[a]** or **[b]** happens, clean the video heads with the Sony DVM12CL cleaning cassette (not supplied). Check the picture and if the above problem persists, repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Note

If the DVM12CL cleaning cassette (not supplied) is not available in your area, consult your nearest Sony dealer.

Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On handling tapes

- Do not insert anything into the small holes on the cassette.
- Do not open the tape protect cover or touch the tape.
- Avoid touching or damaging the terminals. To remove dust, clean the terminals with a soft cloth.

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

AC power adaptor

Charging

- Use only a lithium ion type battery pack NP-F100/NP-F200.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the mains when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Using your camcorder abroad

Each country has its own electric and TV colour systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 100 V to 240 V AC, 50/60 Hz.

Difference in colour systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system-based TV.

Check the following list.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country

Brazil

PAL-N system countries

Argentina, Paraguay, Uruguay

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries

Bulgaria, Czech Republic, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Trouble check

If you run into any problem using the camcorder, use the following table to troubleshoot the problem. Should the difficulty persist, disconnect the power source and contact your Sony dealer or local authorized Sony service facility.

Camcorder

Power

Symptom	Cause and/or corrective actions
The power is not on.	<ul style="list-style-type: none">The battery pack is not installed. → Install the battery pack. (p. 8)The battery is dead. → Use a charged battery pack. (p. 6)The AC power adaptor is not connected to mains. → Connect the AC power adaptor to mains. (p. 20)If the power is still not on after you tried the corrective actions above, press the RESET button on the back of the cassette compartment lid using a sharp-pointed object. (If you press the RESET button, all the settings including the date and time return to the default.) (p. 63)
The power goes off.	<ul style="list-style-type: none">While being operated in CAMERA mode, the camcorder has been in Standby mode for more than 5 minutes. → Set the POWER switch to OFF, then to CAMERA. (p. 11)The battery is dead. → Use a charged battery pack. (p. 6)
The battery pack is quickly discharged.	<ul style="list-style-type: none">The ambient temperature is too low. (p. 51)The battery pack has not been charged fully. → Charge the battery pack again. (p. 6)The battery pack is completely dead, and cannot be recharged. → Use another battery pack. (p. 20)
The battery pack cannot be installed.	<ul style="list-style-type: none">Only an NP-F100/NP-F200 battery pack can be used.

Additional information

Operation

Symptom	Cause and/or corrective actions
START/STOP does not operate.	<ul style="list-style-type: none">The tape is stuck to the drum. → Eject the tape. (p. 9)The tape has run out. → Rewind the tape or use a new one. (p. 17)The POWER switch is set to VTR. → Set it to CAMERA. (p. 10)The tab on the cassette is out (red). → Use a new tape or slide the tab. (p. 9)
The cassette cannot be removed from the holder.	<ul style="list-style-type: none">The battery is dead. → Use a charged battery pack or the AC power adaptor. (p. 6, 20)
■ and ▲ indicators flash and no function except for cassette ejection works.	<ul style="list-style-type: none">Moisture condensation has occurred. → Remove the cassette and leave the camcorder for at least 1 hour. (p. 54)
"CLOCK SET" appears when the camcorder is turned on.	<ul style="list-style-type: none">Reset the date and time. (p. 48)

Continued to the next page

Trouble check

Operation

Symptom	Cause and/or corrective actions
The End Search function does not activate.	<ul style="list-style-type: none"> The cassette was ejected after you recorded on it. → The End Search function will not activate until you make a new recording after reinserting the cassette.
The tape does not move when a tape transport button is pressed.	<ul style="list-style-type: none"> The POWER switch is set to CAMERA or OFF. → Set it to VTR. (p. 17) The tape has run out. → Rewind the tape or use a new one. (p. 17)
No sound or only a low sound is heard when playing back a tape.	<ul style="list-style-type: none"> The volume is turned to the minimum. → Open the LCD panel and press VOLUME +. (p. 17)
The SteadyShot function does not activate.	<ul style="list-style-type: none"> S SHOT is set to OFF in the menu system. → Set it to ON. (p. 31)
Recording stops at once.	<ul style="list-style-type: none"> The POWER switch is set to PHOTO. → Set it to CAMERA.
Recording stops in a few seconds.	<ul style="list-style-type: none"> The START/STOP MODE switch is set to 5SEC or $\frac{1}{2}$. → Set it to $\frac{1}{2}$. (p. 14)
The autofocus function does not activate.	<ul style="list-style-type: none"> Focus is set to the manual mode. → Set it to autofocus. (p. 36) Shooting conditions are not suitable for autofocus. → Set focus to manual mode to focus manually. (p. 36)
The fader function does not work.	<ul style="list-style-type: none"> The START/STOP MODE switch is set to 5SEC or $\frac{1}{2}$. → Set it to $\frac{1}{2}$. (p. 14)

Picture

Symptom	Cause and/or corrective actions
The image on the viewfinder screen is not clear.	<ul style="list-style-type: none"> The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 11)
A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	<ul style="list-style-type: none"> The contrast between the subject and background is too high. The camcorder is not malfunctioning. → Change locations.
The picture is "noisy" or does not appear.	<ul style="list-style-type: none"> The video heads may be dirty. → Clean the heads using the Sony DVM12CL (not supplied) cassette. (p. 54)
☒ indicator flashes on the LCD screen or in the viewfinder.	<ul style="list-style-type: none"> The video heads may be dirty. → Clean the heads using the Sony DVM12CL (not supplied) cleaning cassette. (p. 54)
The picture is too bright or too dark.	<ul style="list-style-type: none"> LCD BRIGHT is not adjusted properly. → Press + or - to obtain the brightness you want. (p. 13)
A vertical band appears when shooting a very bright subject.	<ul style="list-style-type: none"> The camcorder is not malfunctioning.
The picture does not appear in the viewfinder.	<ul style="list-style-type: none"> The LCD panel is open. → Close the LCD panel.
The picture does not appear on the LCD screen or in the viewfinder.	<ul style="list-style-type: none"> Incorporated fluorescent tube is worn out. → Please contact your nearest Sony dealer.

Picture

Symptom	Cause and/or corrective actions
While editing using the DV connecting cable, recording picture cannot be monitored.	<ul style="list-style-type: none">• Remove the DV connecting cable, and connect it again.

Others

Symptom	Cause and/or corrective actions
The camcorder becomes warm.	<ul style="list-style-type: none">• If the power of the camcorder is on for a long time, it becomes warm, which is not malfunction.
The supplied Remote Commander does not work.	<ul style="list-style-type: none">• COMMANDER is set to OFF in the menu system. → Set it to VTR4 or ID. (p. 67)• Something is blocking the infrared rays. → Remove the obstacle.• The battery is not inserted with the correct polarity. → Insert the battery with the correct polarity. (p. 67)• The batteries are dead. → Insert new ones. (p. 67)
The CHARGE lamp flashes after you charge the battery pack installed in the camcorder.	<ul style="list-style-type: none">• The camcorder is not malfunctioning.
No function works though the power is on.	<ul style="list-style-type: none">• Disconnect the connection plug on the battery pack or on the AC power adaptor, then reconnect it in about 1 minute. Turn the power on. If the functions still do not work, press the RESET button on the back of the cassette compartment lid using a sharp-pointed object. (If you press the RESET button, all the settings including the date and time return to the default.) (p. 63)

Additional information

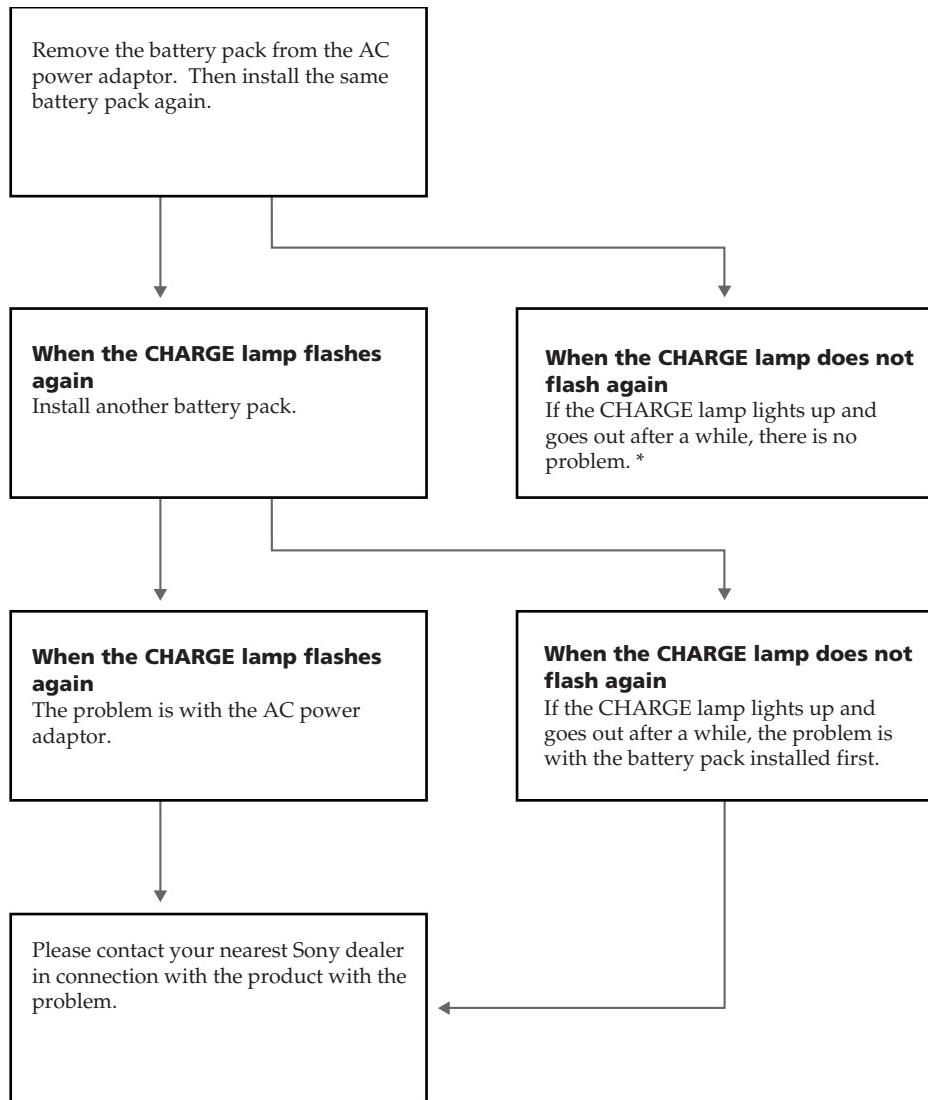
AC power adaptor

Symptom	Corrective actions
The VTR/CAMERA or CHARGE lamp does not light.	<ul style="list-style-type: none">• Disconnect the mains lead. After about 1 minute, reconnect the mains lead. (p. 6)
The CHARGE lamp flashes.	<ul style="list-style-type: none">• See the chart on the next page.

Trouble check

When the CHARGE lamp flashes

Check through the following chart.



* If you use a battery pack which you have just bought or which has been left unused for a long time, the CHARGE lamp may flash at the first charging. This does not indicate a problem. Repeat again to charge with same battery pack.

Specifications

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning system

Audio recording system
Rotary heads, PCM system

Video signal

PAL colour, CCIR standards

Usable cassette

Mini DV cassette with logo printed

Tape speed

SP: Approx. 18.83 mm/s
LP: Approx. 12.57/s

Recording/playback time

SP mode: 1 hour (DVM60)
LP mode: 1.5 hours (DVM60)

Fastforward/rewind time

Approx. 2 min. 30 s (DVM60)
(using the battery pack)
Approx. 1 min. 45 s (DVM60)
(using the AC power adaptor)

Image device

CCD (Charge Coupled Device 1/3")

Viewfinder

Electric viewfinder (colour)

Lens

Combined power zoom lens, 120x (Digital), 10x (Optical)

Focal distance

f = 4.0 to 40 mm
(38 to 380 mm when converted into a 35 mm still camera)

F 1.8 – 2.6

TTL autofocus system inner focus wide macro system

Colour temperature

Auto

Minimum illumination

3 lux at F 1.8

Illumination range

3 to 100,000 lux

Recommended illumination

More than 100 lux

LCD screen

Picture

2.5 inches measured diagonally
50.05 x 37.1 mm

On-screen display

TN LCD/TFT active matrix method

Total dot number

84,480 (384 x 220)

Input and output connectors

S video output

4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced, sync negative
Chrominance signal: 0.3 Vp-p, 75 Ω, unbalanced

Audio/Video output/Headphones jack

Special minijack, 1 Vp-p, 75 Ω, unbalanced, sync negative
327 mV, (at output impedance more than 47 kΩ)
Output impedance with less than 2.2 kΩ/Stereo minijack (ø 3.5 mm)

DV input/output

4-pin special connector

Speaker

Piezo-electric-speaker

Connection

26-pin connector

General

Power requirements

7.2 V (battery insertion input)
8.4 V (26-pin connector)

Average power consumption

5.0 W during camera recording using viewfinder
6.0 W during camera recording using LCD screen

Operating temperature

0°C to 40°C (32°F to 104°F)

Storage temperature

-20°C to 60°C (-4°F to 140°F)

Dimensions

Approx. 59 x 129 x 118 mm (w/h/d)

Mass

Approx. 500 g excluding the battery pack, lithium battery and cassette

Approx. 620 g including the battery pack NP-F100, lithium battery and cassette DVM60

Microphone

Electret condenser microphone, Stereo type

Supplied accessories

See page 5.

AC power adaptor

Power requirements

100 to 240 V AC, 50/60 Hz

Power consumption

25 W

Output voltage

DC OUT: 8.4 V, 1.8 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode

Application

Sony battery pack NP-F100, NP-F200 lithium ion type

Operating temperature

0°C to 40°C (32°F to 104°F)

Storage temperature

-20°C to 60°C (-4°F to 140°F)

Dimensions (Approx.)

57 x 44 x 107 mm (w/h/d)

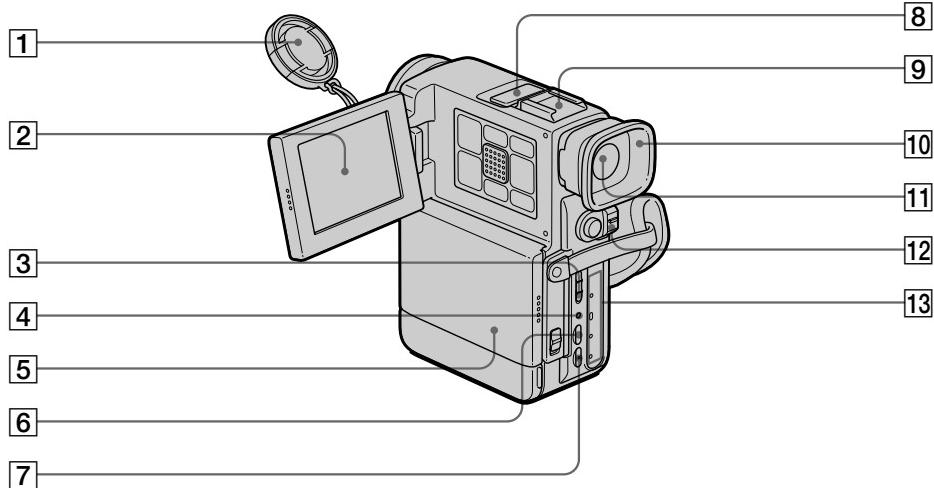
Mass (Approx.)

190 g

Additional information

Design and specifications are subject to change without notice.

Identifying the parts



[1] Lens cap (p. 10)

[8] Built-in microphone

[2] LCD screen (p. 13)

[9] Accessory shoe (p. 14)

[3] START/STOP MODE switch (p. 14, 26)

[10] Eyecup (p. 16)

[4] CHARGE lamp (p. 6, 21)

[11] Viewfinder (p. 70)

[5] Battery terminal cover (p. 8)

[12] POWER switch (p. 10, 17)

Remove the cover to install the battery back.

[13] Tape transport buttons (p. 17)

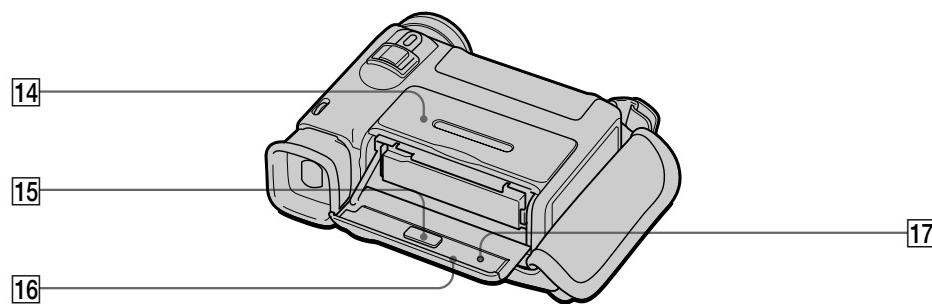
■ STOP (stop)

◀◀ REW (rewind)

▷ PLAY (playback)

▶▶ FF (fastforward)

■ PAUSE (pause)



Additional information

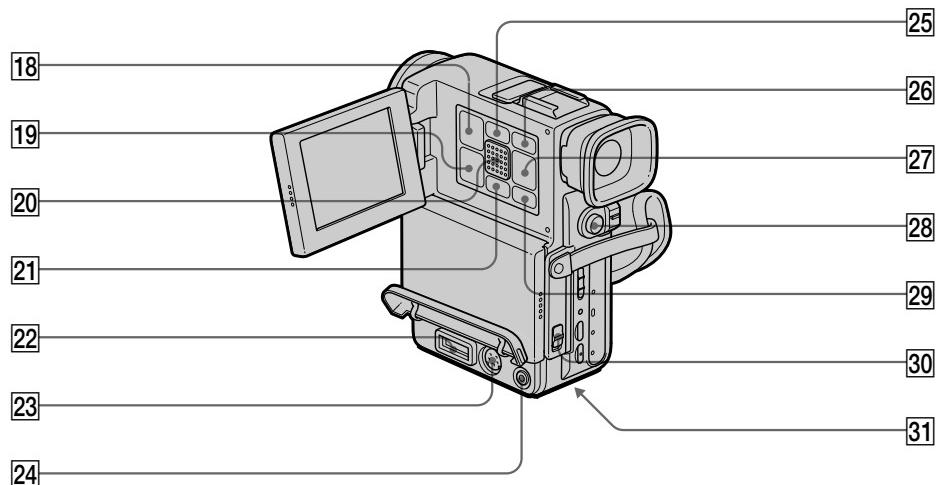
[14] Cassette compartment (p. 9)

[15] ▲ EJECT button (p. 9)

[16] Cassette compartment lid (p. 9)

[17] RESET button (p. 57)

Identifying the parts



[18] LCD BRIGHT button (p.13, 17)

[25] END SEARCH button (p. 19)

[19] VOLUME button (p. 17)

[26] MENU button (p. 22)

[20] Speaker

[27] \uparrow/\downarrow buttons (p. 22)

[21] DISPLAY button (p.17)

[28] START/STOP button (p. 10)

[22] 26-pin connector (p. 20)

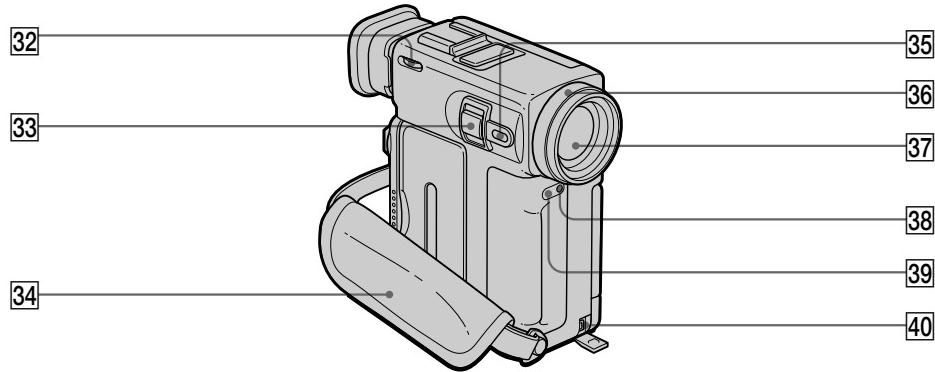
[29] EXECUTE button (p. 22)

[23] S VIDEO jack (p. 38, 42)

[30] BATT (battery) LOCK/RELEASE switch
(p. 8)

**[24] AUDIO VIDEO OUT/ \odot (headphones)
jack** (p. 17, 38, 42)

[31] Tripod receptacle (p. 15)



[32] Viewfinder lens adjustment dial
(p. 11)

[33] Zoom switch (p. 12)

[34] Grip strap (p. 15)

[35] FOCUS/(INFINITY) button (p. 36)

[36] Focus ring (p. 36)

[37] Lens

[38] Recording lamp (p. 10)

[39] Remote sensor

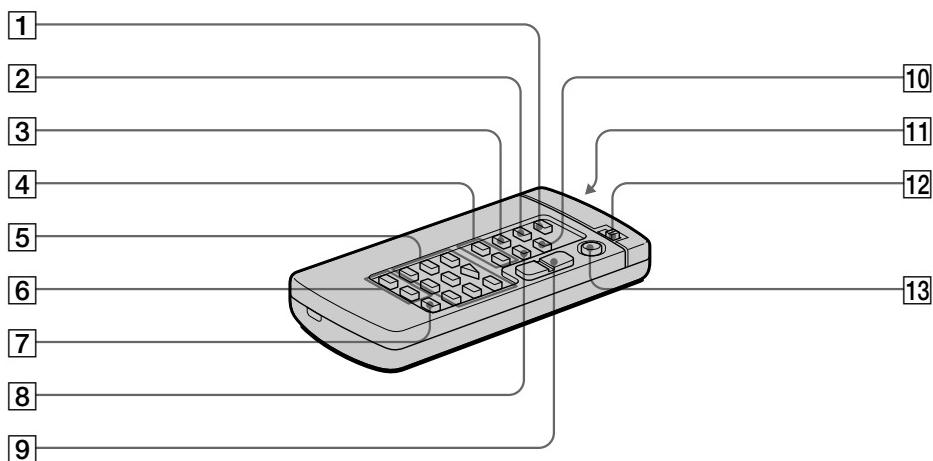
Aim the Remote Commander here for
remote control.

[40] DV IN/OUT jack (p. 42)

Identifying the parts

Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.



[1] PHOTO button (p. 28)

[9] Power zoom button (p. 12)

[2] DISPLAY button (p. 17)

[10] ZERO SET MEMORY button (p. 40)

[3] SEARCH MODE button (p. 41)

[11] Transmitter

Point toward the remote sensor to control the camcorder after turning on the camcorder.

[4] ▶◀ / ▶▶ buttons (p. 41)

[5] Tape transport buttons (p. 17)

[12] VTR4/ID/VTR2 selector (p. 68)

Select VTR4 or ID, the same setting as COMMANDER in the menu system. Select VTR2 when using with 8 mm camcorder.

[6] Recording buttons (p. 44)

[7] AUDIO DUB button (p. 46)

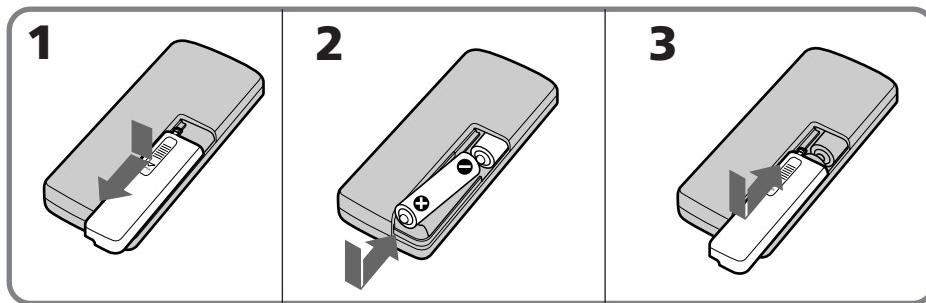
[8] DATA CODE button (p. 39)

[13] START/STOP button (p. 10)

To prepare the Remote Commander

To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

- (1) Remove the battery cover from the Remote Commander.
- (2) Insert both of the R6 (size AA) batteries with correct polarity.
- (3) Put the battery cover back onto the Remote Commander.



Note on battery life

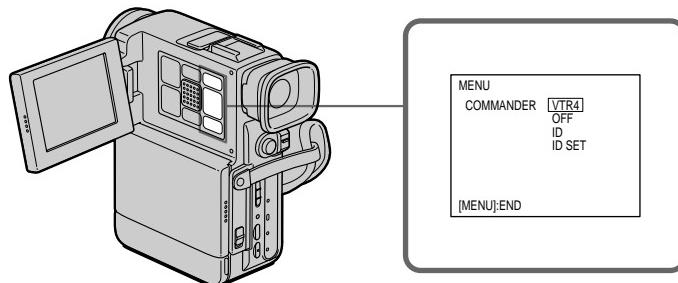
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Remote Commander for a long time.

To use the Remote Commander

Make sure that the COMMANDER is set to VTR4 or ID in the menu system on the camcorder.



Identifying the Parts

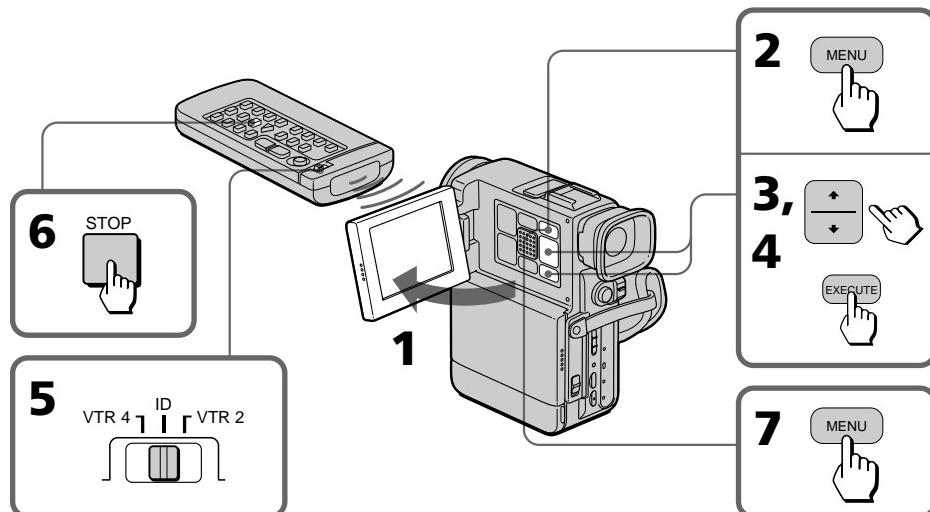
About the ID of the Remote Commander

You can avoid misoperation from other remote commanders by setting the VTR4/ID/VTR2 selector to ID. Use the supplied Remote Commander when you set the selector to ID. When you use the Remote Commander for the first time, register the ID following the procedure below. Once you register the ID, you do not need to do again.

- (1) Open the LCD panel.
- (2) Press MENU to display the menu on the LCD screen.
- (3) Press **↑** or **↓** to select COMMANDER, then press EXECUTE.
- (4) Press **↓** to select ID SET.
- (5) Set the VTR4/ID/VTR2 selector on the Remote Commander to ID.
- (6) Point the Remote Commander at the camcorder and press ■ STOP on the Remote Commander.

After the beep sound, the ID of the Remote Commander is registered, and the COMMANDER is set to ID in the menu system.

- (7) Press MENU to erase the menu display.



When the BEEP is set to OFF in the menu system
The beep does not sound at step 6.

Remote control direction

Aim the Remote Commander to the remote sensor.

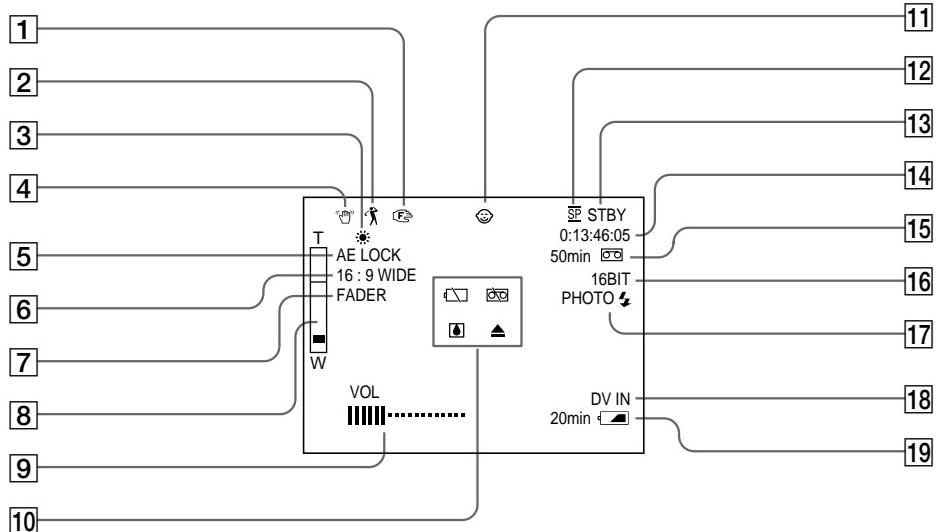
The operative range of the Remote Commander is about 5 m indoors. Depending on the angle, Remote Commander may not activate the camcorder.

Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works at commander mode VTR4 or ID. The commander modes (VTR4 or ID) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode ID, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.
- You do not need to register the ID again once you have done so. Set the COMMANDER to ID in the menu system, and set the VTR4/ID/VTR2 selector ID on the Remote Commander to ID.
- The registered ID is not erased even if the built-in vanadium-lithium battery is discharged.

Identifying the parts

Operation indicators

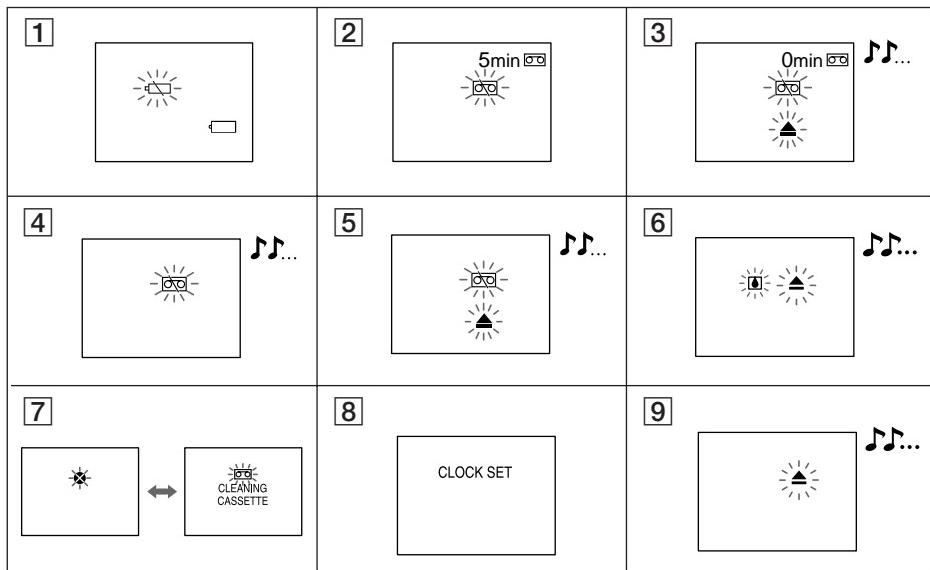


- | | |
|--|---|
| [1] Manual focus/infinity indicator (p. 36) | [11] Mirror mode indicator (p. 25) |
| [2] PROGRAM AE indicator (p. 33) | [12] Recording mode indicator (p. 11) |
| [3] White balance indicator (p. 34) | [13] Recording standby mode (p. 10)/
Tape transport mode indicator |
| [4] SteadyShot indicator (p. 31) | [14] Time code indicator (p. 11) |
| [5] AE LOCK indicator (p. 37) | [15] Remaining tape indicator (p. 11) |
| [6] 16:9 WIDE indicator (p. 30) | [16] Audio mode indicator (p. 49) |
| [7] FADER indicator (p. 27) | [17] Photo recording indicator (p. 28)/
Electronic flash indicator |
| [8] Zoom indicator (p. 12) | [18] DV IN indicator (p. 43) |
| [9] BRT (bright) indicator (p. 13)/
VOL (volume) indicator (p. 17) | [19] Remaining battery indicator (p. 51)/
Remaining time in minutes indicator
 |
| [10] Warning indicator (p. 71) | |

Warning indicators

If indicators flash on the LCD screen or in the viewfinder or warning messages appear on the display window, check the following:

 : you can hear the beep sound when BEEP is set to ON in the menu system.



[1] The battery is weak or dead.

Slow flashing: The battery is weak.

Fast flashing: The battery is dead.

Depending on conditions, the  indicator may flash, even if there are 5 to 10 minutes remaining.

[2] The tape is near the end.

The flashing is slow.

[3] The tape has run out.

The flashing becomes rapid.

[4] No tape has been inserted.

[5] The tab on the tape is out (red).

[6] Moisture condensation has occurred.
(p. 54)

[7] The video heads may be contaminated. (p. 54)

[8] The clock is not set.

If the clock is not set when you press START/STOP button in the CAMERA mode, the message appears for 5 seconds.

[9] Some other trouble has occurred.

Disconnect the power source and contact your Sony dealer or local authorized facility.

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